

**SENSATION SEEKING, DRUG USE, AND THE ROUTES OF PERSUASION  
IN THE ELABORATION LIKELIHOOD MODEL**

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## ABSTRACT

### SENSATION SEEKING, DRUG USE, AND THE ROUTES OF PERSUASION IN THE ELABORATION LIKELIHOOD MODEL

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The prevalence of drug abuse in society has sparked an interest in prevention programs and the effectiveness of information campaigns in these programs. Many studies have identified individual differences moderating the affect of these anti-drug information campaigns. Sensation seeking has been consistently linked with drug abuse, but how sensation seeking influences attention, interpretation, elaboration, retention, and affect for different messages has remained unanswered. Petty and Cacioppo's Elaboration Likelihood Model (ELM) emphasizes the importance of recognizing the two routes of persuasion and their end results.

One vehicle for anti-drug messages is the public service announcement (PSA). PSAs require a relatively high level of information processing to achieve persuasive goals in 15 to 30 seconds. Due to the connection between sensation seeking and drug abuse and the high level of attention and information processing needed for prevention methods, sensation seeking as a variable of the ELM provides some salient information about the information processing behaviors of high, moderate, and low sensation seekers. This study examined these behaviors by sampling 218 students in

communication courses at three different colleges. The participants were presented with either a high or low sensation value PSA. Following the PSA, participants completed a series of measures, assessing level of sensation seeking, personal involvement, thought processing, affect towards message, drug attitudes, behavioral intentions, recall, drug behaviors, and television/movie preferences.

This study found that high sensation seekers were the most involved in the message, generated the most irrelevant thoughts, retained the most information, held pro-drug attitudes, used drugs frequently in the past, and intended to use drugs in the future. They also sought out high sensation movies. Low sensation seekers were the least involved in the message, generated an intermediate number of irrelevant thoughts, retained the least amount of information, held anti-drug attitudes, reported little to no past drug use, and did not intend to use drugs in the future. They sought out low sensation movies. Moderate sensation seekers were intermediately involved in the message, generated the least irrelevant thoughts, retained information, held a midrange attitude, used drugs infrequently in the past, and did not intend to use drugs in the future. They sought out moderate sensation movies.

The results of this study are interpreted and discussed within the frames of the Health Belief Model and ELM, and connections are drawn that support the physiological-attitudinal-intentional-behavioral causal chain.

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## **CHAPTER I INTRODUCTION**

The prevalence of drug abuse in society has sparked an interest in prevention programs to decrease the demand for drugs. In particular, the effectiveness of information campaigns in these programs have been the target of evaluative research in communication. Various approaches have been implemented, including media-based and community-based campaigns. These approaches have had different success rates in changing behaviors, and the research identifies the important functions of each approach in combatting such a problematic issue. Since attitude and behavior change are the goals of most communication campaigns, audience analysis is vital for predicting responses to persuasive appeals and determining beliefs to be incorporated into these appeals.

Many studies have identified individual differences that moderate the affect of these anti-drug information campaigns. According to the cognitive response perspective of persuasion, it is these individual differences and responses that influence how people transform and synthesize the information they are receiving. This cognitive process results in the development, retention, and modification of future attitudes and behavioral intentions. By incorporating the Elaboration Likelihood Model, which assumes a cognitive response perspective, campaign developers have a theoretical

framework upon which to base information campaigns and to predict the consequences of campaigns for certain at-risk individuals. A greater sensitization to these issues will likely result in more effective anti-drug campaigns. These concepts will be discussed further in this paper, but first, the issue of information campaigns and the role of the media will be examined.

### Information Campaigns and the Role of the Media

Voluntary associations possess the right to advocate certain issues, and the mass media are capable of providing access to the public (Paisley, 1989). Social scientists have contributed a theoretically grounded approach to the planning, conducting, and evaluating of these campaigns, while government organizations, such as the National Institute of Drug Abuse, have often contributed the funding for these campaigns (Paisley, 1989). Each audience for these campaigns creates a unique communication environment which filters the messages that reach it; therefore, each audience member may respond differently to various persuasive appeals. As a result, the effectiveness of information campaigns rests on the degree of shared values and perceptions in the audience (Paisley, 1989). By gaining knowledge of these shared perceptions, researchers may increase the likelihood of persuasion by incorporating or exploiting them in campaign messages. As Paisley states,

"One crusader... cannot achieve reform until large numbers of citizens agree that action is necessary" (p. 25).

Characteristically, the mass media have been better at reinforcing attitudes than changing attitudes (Wartella & Middlestadt, 1991). This function is influenced by selective attention and retention of the audience, such that the audience's memory of material is consistent with its pre-existing attitudes towards the subject (Wartella & Middlestadt, 1991). Also, the selective exposure tendency explains which information is sought out or avoided. Audience agreement or disagreement with the communication determines whether they seek out or avoid exposure to it (Paisley, 1989). In addition, the audience's affective response to the material influences the likelihood of attention, persuasion, and retention. Audience members often decide if they like or dislike the communication before they are aware of what it says (Paisley, 1989).

The Hierarchy of Communication Effects Model attempts to explain the process of persuasion. Individuals move from a state of unawareness of the message through awareness, attitude change, behavior change, and maintenance of that behavior (Solomon, 1989). However, people may not always move from awareness to attitude change to behavior change. If an attitude change does occur, it does not necessarily guarantee behavioral change. Gantz, Fitzmaurice, and Yoo (1990) titled this phenomenon KAP gaps. Following a

communication, audiences appear more knowledgeable (K) about issues and claim to have favorable attitudes (A) but their behavior or practices (P) remain unaffected. This phenomenon is particularly evident when people are forced to enact some behavior or when the choices among similar objects or behaviors are relatively unimportant to them (Solomon, 1989). Therefore, it should not be assumed that all mass media effects are direct. Researchers should analyze in which order knowledge, attitude, behavior might occur for specific situations and should discover the current processing stage of the audience (Solomon, 1989).

Historically, mass communication and interpersonal communication have been treated as mutually exclusive fields of study with differing functions in persuasion. Mass media have been effective at creating awareness, and interpersonal communication has been better for motivating behavior change (Solomon, 1989). However, many researchers are arguing for an integration of the two fields in information campaigns that wish to establish a stable behavior change, especially with regard to health behaviors. Concentrated media campaigns are likely to result in heightened awareness, knowledge, and salience of health issues, as well as increased and more comfortable interpersonal communication about them (Greenberg & Gantz, 1989). O'Keefe and Reid (1989) state that participants who viewed public service announcements for the McGruff Crime Prevention Campaign

liked the message and considered it worth telling others about, learned something new (25 percent), remembered information they already knew (50 percent), took specific actions( 25 percent), and felt more confident about their ability to protect themselves (50 percent).

Although research shows that the public sees public service announcements as important and reliable sources of health and medical information, the research also indicates that these announcements are not likely to produce a behavior change on their own (Alcalay & Taplin, 1989). The mass media can have powerful effects on setting healthy agendas for the public by emphasizing certain beliefs (Alcalay & Taplin, 1989), and it is generally supported that a change in beliefs leads to long-term changes in behavior (Ball-Rokeach & Rokeach, 1989). However, public service announcements are only one component in a campaign. Campaigns should include an array of mass media and interpersonal communication activities (Alcalay & Taplin, 1989). Although findings cited above on the effectiveness of public service announcements and media campaigns are generally consistent, there have certainly been cases of effective public service announcements. This success is not a function of the channel or source of information but the type of information and the relationship of the communicants.

Communication intended to influence complex behaviors must perform three functions: inform persons about those behaviors and their consequences, persuade persons to cease or avoid those behaviors, and train persons in the skills necessary for the transition of intent into action (McAlister, Ramirez, Galavotti, & Gallion, 1989).

Petty, Baker, and Gleicher (1991) emphasize that a new attitude cannot influence behavior unless people possess the necessary skills and confidence to implement their new attitudes. Attitudes based on direct experience come to mind more readily than those based on externally provided information (Petty et al., 1991). Therefore, prevention programs or information campaigns should incorporate role playing and other direct experiences so people can practice dealing with contrary attitudes or feelings (Petty et al., 1991).

The efforts of many smoking cessation campaigns demonstrate the need for a combined information, persuasion, and skills-training approach. The "Quit for Life" Program achieved immediate short term objectives with a media campaign, but the subset of high risk groups who received face-to-face instruction had more success than smokers who received media and community programs only (McAlister et al., 1989). As a result of the 1987 "Great American Smoke Out" campaign, approximately twelve percent of smokers quit for the day and seven percent did not smoke for one to three

days later (McAlister et al., 1989). Overall, anti-smoking campaigns have been successful in that 90 percent of U.S. adults are aware that smoking has health consequences, and over 80 percent of smokers have attempted to quit smoking at least once (McAlister et al., 1989). However, maintaining their non-smoking status requires training in skills for avoiding relapse.

These effects of communication campaigns are not isolated to the United States. One of the earliest mass media based information campaigns that evaluated behavior changes as a measure of success was conducted in Tanzania (Rice & Foote, 1989). The "Food is Life" campaign used radio messages, study guides, and study groups as channels of information. This approach increased awareness of the need for greater food production and poultry production, resulted in the establishment of more vegetable gardens, improved dietary habits, created a day care center, and changed certain food habits (Rice & Foote, 1989).

### Information Campaigns and the Drug Issue

Information campaigns have had significant effects for diverse health issues, including drug abuse. The government's war on drugs in the mid 1980s was designed to reduce the demand for illegal drugs through public education about the dangers of drugs (Shoemaker, 1989). By changing the public's beliefs, the government hoped to change

attitudes which would subsequently affect behavior. They thoroughly believed that an absence of public education programs would lead to the return of a tolerance of drug use as in the late 1970s (Shoemaker, 1989).

In 1982, the National Institute for Drug Abuse (NIDA) developed a major educational campaign. The "Just Say No" public service announcements were still running on television five years later as a testament to their success (Shoemaker, 1989). However, "with one in eight Americans estimated to be current users of illicit drugs in 1985, it was apparent that drug use was [still] a significant phenomenon in society" (Shoemaker, p. 8).

The NIDA frequently uses information about student attitudes when designing their programs because the reported attitudes often provide pertinent information about the messages needed to encourage attitude or behavior change (Shoemaker, 1989). The 1986 NIDA campaign entitled "Cocaine: The Big Lie" targeted 18-35 year olds about the addictive qualities of cocaine, its potential for producing severe health consequences, and the need to seek treatment (Forman & Lachter, 1989). A two phase media campaign was accompanied by the efforts of community group members to produce encouraging results. In the first year of operation, the toll free hotline received more than 50,000 callers, and in 1989, the hotline was receiving about 6,000 calls per month. This heavy use of the referral hotline was one indication of



the campaign's success (Forman & Lachter, 1989).

In fact, many studies have found that health information campaigns do indeed have an influence on adolescent alcohol (Atkin, Hocking, & Block, 1984) and drug use. Though many variables have been identified as influences on alcohol and drug abuse, Atkin et al. (1984) found advertising or information campaigns to be more strongly related to both beer and liquor drinking than parental influence, age, gender, church attendance, social status, and viewing alcohol in entertainment programming. Additionally, Shoemaker, Wanta, and Leggett emphasize that the media condemnation of drugs as a moralistic issue, rather than a health issue, increases public hostility toward the drug taker and should preclude any rational approach to the problematic drug wave (1989). Indeed, the agenda setting role of the press is one of civic mobilization (Shaw & McCombs, 1989).

The Gordon S. Black Corporation, commissioned by the Partnership for a Drug Free America, conducted an extensive study that examined the affect of advertising on changing attitudes toward drug use. The study began in 1987, prior to the broadcasting of Partnership public service announcements, to track the attitudes of children 9-12, teenagers, college students, and adults. In particular, the researchers looked at attitudes and beliefs about drug use, first use of drugs, perceptions of risks involved, number of

friends who use drugs, accessibility of drugs, the appeals of drug use, and reasons for not using them. These variables were then examined statistically for predicting the likelihood of drug use in the next 12 months or the reported drug use (marijuana or cocaine) in the last 12 months (Black, 1991).

Many of the findings indicate the prevalence of drugs in our society and the need for anti-drug information campaigns. For instance, by the age of 13, twelve percent of the 884 children interviewed have used marijuana, and eight percent have used cocaine. Sixteen percent of children have been approached to buy drugs at some time. Also for this group, 39 percent find it difficult to say no to friends, and 37 percent consider drug users popular (Black, 1991). Although 48 percent fear getting caught by the law and 36 percent fear impure marijuana, twenty-two percent like to be high and like having drugs at parties. College students report using drugs less frequently than teenagers but still carry attitudes that support use. Such as, "drug users are no different" and "drugs help you forget your problems" (Black, 1991).

Although many children reported using drugs, fifty percent of parents believe their children have never tried drugs (Black, 1991). The corporation concludes this section of their study with the following assertions: all efforts of educating must concentrate on children in the 9-12 age

group; ideas of drug users as popular should be dispelled by either using drug users as negative models or using older siblings and peers as positive models; other norms regarding drug use as fun or exciting should be attacked and replaced by social responsibility themes; and parents should be equipped with information about the probability of children using drugs and urged to become pro-active in community programs.

The following year the Black Corporation replicated the study to identify attitude changes that could be attributable to the advertising effort. The researchers found many attitudes as distinctly more anti-drug in all samples; high exposure areas experienced more substantial changes on most variables than the rest of the U.S.; and college students' attitudes changed the most (Black, 1991). Since there was a slight increase in the accessibility of drugs as indicated by respondents, these findings may be attributable to the advertising efforts of the Partnership for a Drug Free America. Many of the ads received excellent exposure, with 95 percent of college students reporting seeing the "man frying egg" PSA and 75 percent giving it a favorable rating (Black, 1991). These results encourage the advertising efforts recently pursued by various organizations, including the Partnership for a Drug Free America and National Institute for Drug Abuse.

Some drug abuse information campaigns are incorporated within the public education curriculum to teach adolescents about the risks and dangers of using drugs (Baker, Petty, & Gleicher, 1991). One such program is Project DARE (Drug Abuse Resistance Education) which is conducted by local police officers. Early prevention programs concentrated on providing factual information, but research in persuasion has indicated that the attitude/behavior change process is much more complex (Baker et al., 1991). There are many attitudes regarding the demand and use of illicit drugs. One may have attitudes toward the drug itself, toward oneself, authority figures, peers, and drug treatment programs. All of these perceptions may contribute to drug use and to the rejection of anti-drug persuasion appeals.

The DARE program attempts to incorporate a variety of features that have been deemed important by current social influence theory (Baker et al., 1991). The informational campaign sessions of DARE distribute information about the negative consequences and risks associated with using drugs. In other sessions, officers explain different types of media and peer pressures for engaging in drug use, and participants practice various resistance techniques through role playing. Sessions also attempt to build self esteem and assertiveness and to teach mature decision making processes that promote self interest. The trend in drug education through the 1980s has been to incorporate a greater degree

of participant involvement (Baker et al., 1991). In DARE, participants are encouraged to ask questions and to discuss personal values. They also compose and read aloud essays on responding to social pressures to use drugs. These essays symbolize making a public commitment to be drug free. Finally, the participants receive certificates of achievement during a school-wide assembly as a reward for their active participation in the program (Baker et al., 1991).

To conclude that DARE, although theoretically grounded, has been maximally successful would be an overstatement (Baker et al., 1991). Some follow-up evaluations of these programs indicate that there are occasional differences in adolescent's knowledge, attitudes, intentions, and resistance abilities towards drugs as much as a year after the program (Baker et al., 1991). The increase in peer pressure in years following participation in the program; the different bases for attitudes; and the presence of motivation, ability, and opportunity are likely reasons for its moderate success. These events all represent challenges for the information campaign developer and persuasion researcher.

### Individual Risk Factors for Drug Abuse

In order to effectively develop and target prevention campaigns, individual risk factors for drug abuse must be identified. Some of the factors that have been found to increase the risk of drug use include: low self-esteem, anger, poor school performance (Oetting, Spooner, Beauvais, & Banning, 1991), low self-efficacy, novelty or sensation seeking, social/cultural norms, availability of drugs, laws and enforcement of them (Bukoski, 1991), and a poor relationship with parents (Pickens & Svikis, 1991).

An incorporation of some of these risk factors in the development of an anti-drug information campaign that utilizes peer resistance strategies may increase the effectiveness of such programs.

### **Sensation Seeking as a Risk Factor**

As indicated above, a number of variables may serve as predictors of drug abuse and classifiers for high risk groups. However, sensation seeking, which has a physiological basis, may be an antecedent to other such variables.

In 1964, Zuckerman and associates published the first form of the Sensation Seeking Scale (SSS). This scale is based on the idea that persons differ reliably in their preferences for or aversions to stimuli or experiences with high arousal potential (Zuckerman, 1988). These preferences

are believed to be grounded in a physiological optimal level of arousal. A person's arousal seeking or arousal avoidance is driven by the pleasure centers of the midbrain (Zuckerman, 1979). The four subscales of the sensation seeking scale are:

Thrill and Adventure Seeking (TAS): a desire to seek sensation through physically risky activities

Experience Seeking (ES): a desire to seek sensation through a non-conforming lifestyle, travel, music, art, drugs, and unconventional friends

Disinhibition (DIS): a desire to seek sensation through social stimulation, parties, social drinking, and variety of sex partners

Boredom Susceptibility (BS): an aversion to boredom produced by unchanging conditions or persons and a great restlessness when things are the same for any period of time.

In a survey conducted by Zuckerman in 1970, seventy-four percent of the high sensation seekers have used at least one drug, compared to twenty three percent of the low sensation seekers. Another study by Zuckerman (1979) found that drug experimentation is higher among high sensation seekers, whereas no differences were found between the moderate and low group.

Sensation seekers seem to have an attraction to drugs for several reasons. First, the activity is socially unconventional. Second, since drug use is illegal, there are high risks of being caught or overdosing. These risks may discourage low sensation seekers but enhance the activity for high sensation seekers (Zuckerman, 1979). Third, the drugs themselves provide a new experience or enhance the stimulation from other experiences.

If the sensation seeking theory is correct, sensation seekers' preferences should be related to the arousal potential of the stimuli or experiences (Zuckerman, 1988). For instance, high sensation seekers like ambiguous, complex designs; all types of rock music; horror or action movies; and negative arousal pictures. Low sensation seekers like peaceful landscape scenes, blander music, romantic or musical movies, comedy, and positive arousal pictures. In fact, high sensation seekers tend to like the more emotionally arousing stimuli regardless of whether they are positive or negative, whereas the lows like positively arousing stimuli but dislike negatively arousing stimuli more than the neutral stimuli (Zuckerman, 1988). Low sensation seekers pay more attention to content, but high sensation seekers are influenced more by arousal potential.

Although the original concept is based on a physiological foundation and anticipates no differences between the groups on a cognitive basis, recent studies have



found such differences. Zuckerman (1988) stated high sensation seekers respond to the content in a communication because it stimulates strong feelings in them.

Sensation seekers are less objective when assessing risk in the activities they favor even before they have tried such behaviors (Zuckerman, 1988). Expected emotional reactions are probably the major source of approach or avoidance in these cases. Low sensation seekers may avoid using drugs, not because they expect to be damaged, but because they would expect to experience unpleasant feelings (Zuckerman, 1988). Since attitudes towards drugs are often formed before direct experience, research on sensation seeking and its correlation with information processing may aid in future prevention techniques and message design.

Television, by nature, has the capacity to provide novel stimuli from video and audio components. Viewers can derive sensations from these elements even if they are extraneous to message content or story. While engaging in the pursuit of arousal, the viewer may respond to sources of influence on the attention process that have nothing to do with the subject matter but include aspects of message design (Donohew, Finn, & Christ, 1988). Stories generating more arousal are likely to be seen as more positive provided they do not threaten the receiver (Donohew et al., 1988).

Another study by Donohew et al. (1988) indicated that readers with low needs for arousal find stories on unimportant topics and containing proattitudinal information to generate positive mood changes and greater preferences for continued exposure than those messages containing counterattitudinal information. On the other hand, individuals high in needs for arousal find more important topics, regardless of direction of persuasion, to generate positive moods and desire for continued exposure. However, for both subjects, the optimal level of arousal is exceeded as exposure to counterattitudinal information and negative effects increases. Thus, a desire to discontinue stimulation results (Donohew et al., 1988).

High or low levels of arousal may also reflect the individual's level of involvement in the task, whereas positive or negative evaluations may be attributed to specific goals (reducing uncertainty or mood management) (Donohew et al., 1988). In this regard, self reports of perceived arousal may be more informative than measures of strictly physiological states (Levanthal, 1970). According to Donohew's (1988) action theory of information processing, if a message is too exciting, the individual may go into avoidance. If the message does not allow the level of arousal to be reached, it will be seen as boring and thus be avoided.

News consumers engage in a cognitive matching process to label their physiological arousal, but more importantly, the arousal becomes the end product of the cognition that many times occurs automatically (Donohew et al., 1988). For the drug prevention researcher, the challenge becomes designing messages and programs that facilitate attention and heighten the impact of these cognitive processes.

Sutker, Archer, and Allain (1978) recognize the importance of tailoring prevention programs to the individual, taking into account personality differences. They suggest that treatment of low sensation seekers might incorporate relaxation and social skills training to provide alternatives to drug use for reducing unpleasant internal states. However, high sensation seekers may be encouraged to identify activities and goals that provide stimulating alternatives to drugs and the nonconventional lifestyle of the user.

### **Public Service Announcements and Sensation Seeking**

One vehicle for anti-drug messages is the public service announcement (PSA). Since PSAs are often lost in the clutter of commercials and programming, they must be capable of attracting attention and motivating viewers to attend to the message to be effective forms of communication. In addition, these messages require a relatively high level of information processing and involvement to achieve

informational or persuasive goals in a brief 15 to 30 seconds (Donohew et al., 1991). Ways must be found to motivate both attention and high-level information processing of the public service announcements' contents (Donohew et al., 1991).

Donohew et al. (1991) reported that PSAs with motivational introductions are more effective in inducing people to call a hotline. Also, the behavioral intentions (calling a hotline or discontinuing drug use) of low sensation seekers are affected more by the low sensation message. Most importantly, high sensation seeking users report stronger intentions to call the hotline, whereas low sensation seeking users display negative intentions regarding seeking help or discontinuing drug use. In considering the nonuser groups, the high sensation value message with a motivational introduction is most effective for high sensation seeking nonusers, and the converse is true for low sensation seeking nonusers (Donohew et al., 1991).

On the attitudinal index, the high sensation seeking users display more attitude change in the desired anti-drug direction than the other three groups. High sensation value messages are more effective in changing drug attitudes in all sensation groups. However, the low sensation seeking users indicates the most pro-drug attitudes and are least likely to call the hotline. The researchers speculate that

low sensation seekers are searching for consistency since drug use is against their personality makeup. Therefore, the low sensation seekers attribute their user status to some external reason, such as peer pressure, and engage in a classic defense response to anti-drug messages (Donohew et al., 1991). The findings of this study suggest that involvement in drugs mediated the effect of the sensation in the message for the users.

High sensation seekers not only tolerate but require stronger messages for attracting and holding attention -- a major factor in exposure to and comprehension of drug abuse messages and in attitude formation and behavioral intent (Donohew et al., 1991). Using motivational introductions has proven to be effective in gaining attention and increasing involvement, which is primary predictor of information processing intensity (Donohew et al., 1991).

How people process the message, how initial knowledge is represented, how this prior knowledge influences the information processed, and how the individual is transformed in response to the message are areas that deserve examination before the development and evaluation of anti-drug media campaigns for targeted audiences (Wartella & Middlestadt, 1991). However, in answering such questions, researchers must also take into account audience differences (specifically sensation seeking) to achieve maximum effectiveness with information campaigns.

### Elaboration Likelihood Model of Information Processing

The purpose of drug prevention information campaigns is to produce negative attitudes towards the use of drugs; therefore, prevention programs provide an important arena for the application of numerous theories of attitude change and models of the knowledge-attitude-behavior relationship (Baker et al., 1991).

Researchers have generally agreed that attention, perception, comprehension, storage, and recall comprise the major aspects of human information processing (Donohew, 1990). In addition, the overall process is initiated not only by stimulus characteristics but also by the individual's level of physiological arousal (Cacioppo & Petty, 1983). One model of information processing is Petty and Cacioppo's Elaboration Likelihood Model (ELM). A brief overview of its assumptions will be beneficial before further discussion of anti-drug messages.

The Elaboration Likelihood Model of persuasion emphasizes two routes to persuasion (see Figure 1.1). The central route involves effortful cognitive activity where the person matches prior experience and knowledge to critique and evaluate the issue-relevant arguments in the communication. This type of processing requires motivation and ability to process the perceived assets of the message. Attitudes formed via the central route are long-standing, predictive of behavior, and resistant to change (Petty &

Cacioppo, 1986).

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Insert Figure 1 about here

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The second route to persuasion, the peripheral route, emphasizes that simple cues (source, message, channel, receiver, context cues) that are external to the message content can either elicit an affective state or trigger a simple inference used to judge the validity of the message (Petty et al., 1991). These attitude changes tend to be less persistent, predictive of future behavior, and resistant to change because they are based on associations and feelings that may change over time (Petty, Cacioppo, & Kasmer, 1988). Since the information is organized around salient peripheral cues and thus scattered in memory, it is difficult to retrieve at the appropriate time (see Figure 1.2).

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Insert Figure 2 about here

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In his 1986 article, Stiff contends that the ELM fails to account for the effect of parallel processing of central and peripheral information. Although Petty et al. (1987) reply that the ELM does not preclude multi-channel processing, Stiff and Boster (1987) do not accept this explanation and state that they prefer to evaluate the ELM based upon what it does predict rather than what it does not

preclude. Based upon the diagram of the model presented in Petty and Cacioppo's introduction article (1981), Stiff and Boster (1987) have difficulty accepting the assertion that parallel processing is a central feature of the ELM and challenge Petty and Cacioppo to specify the conditions under which central, peripheral or parallel processing occurs and ask how these conditions impact attitudes. Finally, Stiff and Boster question the experimental practicality of position that cues may serve to stimulate central or peripheral processing. They state that this position permits the ELM to explain all possible outcomes, thus the model is impossible to falsify and of little value in making apriori predictions.

In a reply to Stiff and Boster (1987), Petty, Kasmer, Haugtvedt, and Cacioppo (1987) stress that variables in the ELM can serve multiple roles. Variables may serve as persuasive arguments when they provide information salient to issue or object, or they may serve as cues when they are associated with an affective state in the absence of issue-relevant thinking.

In addition, variables may have an impact in two other ways by affecting: 1) the extent of argument elaboration (intensity with which person thinks about central aspects of issue); and 2) the direction of any bias in elaboration (positively or negatively) (Petty et al., 1987).



Stiff and Boster's main criticism of the ELM is that it suggests individuals engage in single channel information processing (Petty et al., 1987). That is, people either process a communication via the central route or the peripheral route. On the contrary, Petty et al., (1987), state in their rebuttal article, "the fact that we have proposed that attitude change may result primarily from argument processing or the operation of peripheral cues does not mean that people are incapable of processing both arguments and cues" (p. 237). However, possessing this ability does not ensure that both arguments and cues will always be processed.

To summarize the implications of the Elaboration Likelihood Model (Baker et al., 1991):

1. Attitude change can occur in the absence of the presumably critical knowledge.
2. Presumably critical knowledge can be acquired without producing an attitude change.
3. Procurement of the same knowledge can lead to differing attitudes.
4. Attitudes that are seemingly the same can have different implications for behavior.

Although variables may serve multiple roles, Petty et al. (1987) provide a general framework under which they do so. For example, under conditions of high elaboration likelihood, affect toward an object or issue may serve an informational role (assessment of life satisfaction as

influenced by current affective state).

When elaboration likelihood is moderate, affect is expected to effect the extent of or moderate the elaboration. If low elaboration likelihood conditions exist, the affect should serve as a cue, producing a change that is consistent with its direction (Petty et al., 1988).

Many variables have already been studied using the ELM, including: perceived personal relevance of message (Petty, Cacioppo, & Goldman, 1981), individual's need for cognition or effortful thinking (Cacioppo, Petty, Kao, & Rodriguez, 1986), direct versus indirect experience (Wu & Shaffer, 1987), forewarning of persuasion, and posture of message recipient (Petty et al., 1988). These variables, and others, determine one's overall motivation to process the issue-relevant arguments, whereas other variables -- such as message repetition and distractions -- determine a person's overall ability to process the arguments.

Since people must be motivated to process messages, and personal relevance is a key factor in motivation, Petty and Cacioppo (1981) hypothesize that increasing a person's involvement in an issue will also increase their motivation to think about the information being presented, i.e., process the message centrally. Indeed, they found that increasing personal relevance enhances processing of the message content and leads to either a decreased or increased acceptance of the message depending upon strength of the

arguments (Petty & Cacioppo, 1981). Obviously, people will not be motivated to process every message they encounter; therefore, personal relevance will moderate which messages are processed centrally or peripherally, according to the ELM. If messages are highly relevant, people tend to engage in issue-relevant thinking, whereas for messages low in relevance, people may process only the source or message cues surrounding the content.

A minimal level of involvement is necessary for peripheral cues to have any affect. If involvement on an issue is extremely low, people might not process the message or the cues at all (Petty et al., 1987). They will avoid and concentrate energies on some other task. On the other hand, if involvement on a issue is extremely high, evaluation of the relevant arguments may be inhibited or biased (Petty et al., 1987). This phenomenon primarily occurs with issues that involve central values, so processing is discontinued in the interest of self-protection (Petty et al., 1987). However, these extreme cases on involvement have not been found in laboratory studies.

#### Integrating Drug Abuse, Sensation Seeking and ELM

Since sensation seeking is highly correlated with drug abuse and drug prevention methods demand a high level of attention and information processing, using level of sensation seeking as a variable of the ELM should provide

some salient information on the information processing behaviors of high, moderate, and low sensation seekers. This, in turn, will enable better targeting of anti-drug messages. As Cacioppo et al., (1986), comment, "the individual differences strategy could be used to measure chronic variations among people in elaboration likelihood prior to presentation of a persuasive appeal" (p. 1032).

Also, an integration with personal relevance, as the primary ingredient, is necessary if any prediction is to be made concerning sensation seeking and routes of persuasion. Within the realm of drug use, level of sensation seeking and personal relevance seem to explain some of the different results reported by campaign researchers, and the examination of this connection will strengthen our understanding of the affective-cognitive link of human behavior.

Information is only successful in producing relatively lasting changes in attitudes and behaviors if people are motivated and able to process the information, and this information processing is likely to produce favorable cognitive and affective responses. Because the goal of persuasion-based drug prevention programs is to produce long lasting changes in attitudes and health behaviors, the central route to persuasion appears to be the most promising strategy (Baker et al., 1991). Unfortunately, stimulating the use of the central route is not simple. Persons must

have the motivation, ability, and opportunity to process the new information. By continuing research in social influence, insight into variables that will enhance the thoughtful processing of anti-drug information may be gained (Baker et al., 1991).

This study intends to elaborate on the findings of Donohew et al., and Petty et al., by indicating how a physiological trait, sensation seeking, affects cognitive processes. Since this link is somewhat unexplored, future researchers may utilize this information in persuasion, mass communication, and interpersonal communication settings.

### The Health Belief Model

Understanding how persons make decisions about certain health related behaviors is necessary for the design of health information campaigns and facilitates the production of effective messages. It is in the production of these messages that the information processing paths come into play. When designing mediated messages for a health campaign, it would be helpful to have a firm grasp on the characteristics of the target audience that influence the processing of the message and allow the prediction of persuasive outcomes. In order to gain a broad perspective on the complex processes behind decisions to engage or to not engage in certain health behaviors, researchers and campaign developers need to have a working knowledge of persuasion

research. In specific, the Health Belief Model (HBM) and Elaboration Likelihood Model (ELM) help explain the diversity in individual responses to the persuasive appeals of health information campaigns. The results of this study can be best interpreted under the umbrella of these two models, not as separate opposing viewpoints but as complementary perspectives.

The Health Belief Model was conceptualized by group of social psychologists who were working for the United States Public Health Service during the 1950s. Their work was greatly influenced by Kurt Lewin, and they thus considered themselves phenomenologists, emphasizing the individual's interpretation of an event as the primary determinant of attitude and behavior (Rosenstock, 1974). Likewise, the cognitive response perspective supports this orientation by asserting that persuasion occurs during the thought process. If the individual has thoughts that are supportive of the message, persuasion occurs in the desired direction. When the cognitive responses are counter to the message, little or no persuasion occurs (Greenwald, 1968). Indeed, these premises are important, as the Health Belief Model borrows from them. The HBM proposes a specific scheme for attitude formation and behavioral intention development.

The Health Belief Model is a cognitive explanation of the decision making process behind performing a health behavior. In the case of drug use, the person decides

whether or not to refrain from drug use or to engage in proactive preventive behaviors (Beisecker, 1991). For the well individual, attitudes and behaviors toward a given illness are relatively neutral and unlikely to motivate behavior of any kind (Beisecker, 1991). The nonuser is not motivated to perform preventive behaviors due to his/her prior anti-drug attitude. Unless persons are motivated to behave, they are unlikely to do so. The Health Belief Model proposes six factors that influence a person's motivation to perform the health behavior (Becker & Rosenstock, 1984).

All individuals carry some perception of their **susceptibility** to the illness or health condition. If they believe they are vulnerable or susceptible, then they are motivated to behave. This motivation is further enhanced by the perception of the **severity** of the health condition (Janz & Becker, 1984). Severity refers to the degree to which the health condition may result in clinical outcomes (e.g., death) and/or social outcomes (e.g., rejection from peer group). The most influential factors concern the perception of **barriers** and **benefits**. The individual must believe that the costs of performing the health behavior are less than the rewards gained from engaging in the health behavior (Janz & Becker, 1984). If the preventive action or sick role action is seen as being too difficult, costly or complex, the likelihood of the behavior being performed and maintained decreases dramatically (Becker & Rosenstock,

1984). In addition, the person may have the desire to perform the health behavior but perceive him/herself as having a low likelihood of success. This situation results from a lack of self **efficacy** or confidence in competently performing a behavior. Finally, motivation to perform a behavior may be influenced by what are called **enabling or mitigating factors** (e.g. demographic characteristics, socio-psychological variables, etc.). Sensation seeking, which is based on a biological optimal level of arousal, could be a mitigating factor in the performance of a unhealthy drug behavior. Likewise, a change in reference others or peer group may facilitate a sick role action of refraining from continued drug use.

Many times, exposure to a trigger or cue increases the probability of the behavior (Rosenstock, 1974; Becker & Rosenstock, 1984). These triggers may be internal (e.g., symptoms) or external (e.g., public service announcements or other mediated campaign messages). Little research on these triggers has been conducted in conjunction with the decision making process of the Health Belief Model. By designing messages that are consistent with the Health Belief Model, incorporating effective triggers to guide the campaign, and researching the cognitive responses the target audience has toward a given message, health information campaigns can effectively create, change, and maintain attitudes and behaviors.



Attitudes and beliefs must be identified since campaigns hinge on the audience's needs and knowledge about the issues, and attitudes have been found to consistently influence health behaviors. The mass media are best utilized in increasing public awareness and knowledge about an issue and stimulating interpersonal communication (Roger & Storey, 1987). In addition, Erickson, McKenna, and Romano (1990) found short term media campaigns to be effectively used to reinforce existing attitudes, maintain interest among users, set a social agenda, spur simple behaviors, and demonstrate simple skills.

The major reason for the small number of people who report changing attitudes and behavior is due to the reality of health information campaigns. These campaigns are stochastic, multi-step processes in which the first step must occur for any subsequent steps to occur. Atkin and Freimuth (1989) identified five steps necessary for attitude and behavior change. First, persons must be exposed to and attend to the message. Second, information processing must take place; they must understand and evaluate the message. Third is the occurrence of cognitive learning, whereby new knowledge and skills are retained. Fourth, the person must yield to the message and/or create, strengthen, change attitudes and behaviors. Finally, the person must utilize the new attitude or behavior. The information must be retrieved, and the behavior performed consistently over time

if maintenance and stabilization is to be achieved.

Obviously in such a complex process, a breakdown can occur at any point. It is the campaign developer's challenge to facilitate the completion of this process.

The Elaboration Likelihood Model takes into account all phases of the attitude/behavior change process up until step five, the actual use of the behavior. The model specifically looks at the varying cognitive responses to persuasive appeals that result in a particular attitude. The Health Belief Model overlaps with the ELM somewhat but continues to carry out the attitude/behavior process by providing an overall framework for how people decide to perform a health behavior and outlines six factors that influence the motivation to do so. If the attitude/behavior process is in fact operating, then integrating the ELM and HBM seems appropriate.

Accordingly, this discussion leads to several hypotheses to be explored in this study.

### Hypotheses

Based upon research, several hypotheses have been derived.

- H1: Under conditions of high relevance, high sensation seekers will process a low sensation value message centrally.
- H2: Under conditions of high relevance, low sensation seekers will process a high sensation value message centrally.
- H3: Under conditions of low relevance, high sensation seekers will process a high sensation value message peripherally.
- H4: Under conditions of low relevance, low sensation seekers will process a low sensation value message peripherally.
- H5: Under conditions of high relevance, high sensation seekers will process a high sensation value message both centrally and peripherally.
- H6: Under conditions of high relevance, low sensation seekers will process a low sensation value message both centrally and peripherally.
- H7: Under conditions of low relevance, high sensation seekers will not process a low sensation value message but will avoid the message.
- H8: Under conditions of low relevance, low sensation seekers will not process a high sensation value message but will avoid the message.

As a method of checking the manipulation of message sensation value, four additional hypotheses are posited based upon previous research. They are:

- H9: High sensation seekers who are highly involved will prefer high sensation value messages over low sensation value messages.
- H10: Low sensation seekers who are highly involved will prefer low sensation value messages over high sensation value messages.

- H11: High sensation seekers will prefer high sensation value television programs; whereas low sensation seekers will prefer low sensation value television programs.
- H12: High sensation seekers will prefer high sensation value movies; whereas low sensation seekers will prefer low sensation value movies.

## CHAPTER II

### METHOD

#### Subjects

The population for this study was college students. Due to time and cost constraints, a convenience sample was used. The 220 participants in this study were obtained from undergraduate communication courses at three colleges and universities. Sixty-nine participants were from the community college, fifty seven from the state university, and ninety three from the private university. The classes met at different times of the day and contained a distribution of ages (18 to 49 with a mean age of 22.) Because the public service announcements were constructed with 18 to 22 year olds in mind, college students were appropriate for this study. In addition, many college students are exposed to and use a number of drugs.

#### Procedure

##### Data collection

Half of the classes viewed a 30-second high sensation value public service announcement. Sensation value was defined as the ability of the content or audio-visual features of a message to elicit sensory, affective, and arousal responses (Donohew et al., 1991). Donohew et al. in their 1991 study conducted extensive pretests of these

messages to ensure high sensation value and low sensation value. Participants in the other classes viewed a low sensation value PSA.

No pretest was administered for any of the dependent variables because of the problem of sensitizing participants to the anti-drug PSA. Therefore, a posttest-only design was used.

Participants engaged in a thought listing technique for approximately two minutes following the presentation. The purpose of imposing a time limit was to increase the likelihood that only thoughts elicited by the communication were obtained. If the interval was longer, participants may have had time to reflect on, generate additions to, or delete portions of responses (Cacioppo & Petty, 1981). Although an immediate post-communication measure of cognitive responses suffers from a loss of retention of cognitions, the loss is often minor (Wright, 1974).

Cognitive responses were unitized by having subjects list one thought per box on a form provided. Instructions for the form were similar to those used by Petty and Cacioppo (see Appendix A). The study was administered by one experimenter to control for experimenter bias. The experimenter explained the coding system to participants, and the subjects classified their responses as message oriented, cue oriented, or irrelevant. The responses were summed for each category (message, cue, irrelevant).

Following the thought-listing measure, instructions were given for each of the following instruments: Zuckerman's Sensation Seeking Scale, the Personal Involvement Inventory, and a questionnaire assessing drug use, recall, affect towards message, drug attitudes, behavioral intentions, and movie and television preferences. The surveys were completed, and the experimenter collected them.

#### Data analysis

The data were analyzed using a 3x3x2 analysis of variance to assess central and peripheral processing by sensation seekers of varying involvement with the two messages. Oneway ANOVAs were used to compare sensation seekers on the level of involvement, behavioral intention, attitude, drug use across lifetime, and television and movie preference measures. A three-way ANOVA examined the influence of sensation seeking, involvement, and message sensation value on affect for the message. Drug use patterns over the last 30 days and attitudes towards drugs were analyzed with the Chi-Square. Oneway ANOVAs were used to examine the difference among heavy users, moderate users, and nonusers of drugs in their intention to use drugs in the future. Oneway ANOVAs were also conducted for frequency of drug use across lifetime on attitudes toward drugs and for intention to use drugs in the future on attitudes toward

drugs. Threeway ANOVAs examined the influence of sensation seeking, involvement, and drug use across lifetime on number of prosocial scenes recalled and on ability to recall the hotline number.

The data were subjected to Cronbach's Alpha to determine reliabilities on the Sensation Seeking Scale, Personal Involvement Inventory, and the Drug Attitude Index. Frequencies and descriptives were also used to determine drug use patterns of the sample; distribution of the sample; average number of thoughts listed per category; and mean for the attitude index, involvement inventory, and Sensation Seeking Scale. Significance was determined at the .05 alpha level.

### Instrumentation

#### Independent variables

##### **Sensation Seeking Scale**

Zuckerman's Sensation Seeking Scale was used to assess participants' levels of sensation seeking. The scale includes four subscales and a total score. Donohew et al. (1991) found a median score for the SSS to be 20 and classified those who scored below 18 as low sensation seekers and those who scored above 22 as high sensation seekers. Those who fell between 19 and 21 were excluded from data analysis.



The mean score for this sample was 19. Those who scored 13 and below were classified as low sensation seekers; those who scored between 14 and 25 were named moderate sensation seekers; and those who scored above 26 were classified as high sensation seekers. The number of participants in the high, moderate, and low sensation categories were 35, 149, and 35, respectively.

Past research has indicated strong construct, concurrent, and predictive validity for this scale. The extensive research has been conducted using scores from the Sensation Seeking Scale as a predictor has been consistent, indicating a degree of reliability. With the exception of the boredom susceptibility dimension, which has a reliability of .56, reliabilities of the component sections range from .68 to .88 (Donohew et al., 1991). The total score reliability for the Sensation Seeking Scale was reported as .81 by Donohew et al. (1991).

Jaffe and Archer (1987) found the SSS to be the most effective and powerful predictor in seven of 10 significant discriminant function equations. Similarly, the SSS was said to show much promise in terms of identifying characteristics of individuals who abuse drugs or alcohol (Andrussi, Archer, Pancoast, & Gordon, 1989). Andrussi et al. (1989) found the SSS was a significant predictor and scores were capable of discriminating single drug users from polydrug users with 72.7 percent accuracy. Of the four subscales, the ES and DIS

were consistently significant in predicting drug and alcohol abuse.

The construct validity of the scale was enhanced by a study performed by Spotts and Shontz (1984) that correlated the number of drugs used and several measures of constructs related to sensation seeking. All instruments correlated positively, indicating that a need for stimulation underlies experimentation with a large number of substances. Likewise, several studies have improved the concurrent validity of the scale by comparing the SSS with other tests measuring similar constructs, such as the Change Seeker Index (Zuckerman, 1988; Spotts & Shontz, 1984).

For this sample, the Cronbach's alpha for the total score on the SSS was .81. The TAS subscale was reliable at the 0.80 level; the ES scale was reliable at the .57 level; the DIS scale was reliable at the .76 level; and the BS scale was reliable at the .58 level. Consistent with previous research, the total score on the Sensation Seeking Scale was used in all the data analyses.

### **The Personal Involvement Inventory**

Personal involvement was defined as a person's perceived relevance of the object based on inherent needs, values, and interests by Zaichkowsky (1985). Zaichkowsky developed a semantic differential scale based on this definition and went about the following procedure to assess reliability and validity.

Zaichkowsky (1985) reported the internal scale reliability to be .95. Test-retest reliability was reported as .95. Zaichkowsky assessed the content validity of the scale and found an interjudge agreement of 80 percent to 84 percent over three product categories. Additionally, the criterion validity was checked by demonstrating agreement with the order of various products. The construct validity of the scale was represented by a positive relationship between scale scores and the subjects' responses to the statements of theoretical propositions pertaining to involvement (i.e., highly involved people are more interested in acquiring information).

Content validity of the inventory was also pretested with respect to advertisements. Three expert judges replaced the word "object" in the involvement definition with "advertisement" and rated the word pairs for representativeness. Agreement across judges was 84 percent. Thus, Zaichkowsky believed the inventory to be sensitive to the proposed areas that affect a person's involvement and generalizable across various research studies.

For this study, Cronbach's alpha of .95 was calculated. After items in the inventory were summed, participants were categorized as showing low involvement, moderate involvement, and high involvement. Since the mean was 98, those scoring in the first quartile (20-74) were categorized as demonstrating low involvement. Those scoring in the top

quartile (121-140) were classified as reflecting high involvement. Those remaining in the middle quartile (75-120) were classified as the moderate involvement group. This categorization method was consistent with previous use of the instrument by Zaichkowsky.

### **The PSAs**

The videotaped program that was used in this experiment contained anti-drug public service announcements that were developed and pretested by Donohew et al. (1991).

The objective was to target the different versions of a PSA specifically at HSS and LSS viewers while controlling as many message variables as possible, such as the general format, theme, actors, and length. Since research findings have indicated that low sensation seekers are unlikely to become drug users unless pressured, the low sensation value message concentrated on resisting peer pressure. On the other hand, research has suggested that high sensation seekers use drugs for excitement, so the high sensation value message concentrated on exciting, prosocial activities (Donohew et al., 1988).

The concept underlying the PSAs was a pinball game. A hand was shown pulling back the plunger to start the ball through the machine, and a voiceover said "the game is life." When drug use was introduced, the game tilted, and the ball went down the "dead end alley," presenting unattractive drug users. The PSAs ended with a 1-800 number

to call for information about how to resist peer pressure for the low sensation value message or about exciting alternatives to drugs for the high sensation value message. This concept received positive comments in the focus groups used in the pretest (Donohew et al., 1991).

The videotaped PSA was shown on a standard 19-inch color television. Subjects who saw the high sensation message were placed in condition one, and subjects who saw the low sensation seeking message were placed in condition two. There were 109 participants in the low message sensation value condition and 110 participants in the high message sensation value condition.

#### Dependent Variables

##### **Thought-listing technique**

Subjects were instructed to list the thoughts they had during the PSA. They were instructed to list one thought per box and to try to list them in order of occurrence. For a complete description of instructions, see Appendix B. After the cognitive responses were unitized by participants as one thought per box on the form, those responses were then classified by the subjects as message oriented, cue oriented, or irrelevant. The experimenter explained that message-oriented responses were those directly pertaining to the central merits of the message. Such as, "drugs are bad." Cue-oriented responses were those that centered on attributes of the PSA, external to the central message. Such

as, "I like to ride rollercoasters." Irrelevant responses were those that did not pertain to the message or its attributes. Such as, "I am hungry." The participants were asked to place a "M", "C", or "I" next to each thought they had listed.

Subjects rating their own responses circumvents the problem of low interrater reliability and judge misinterpretation of responses (Cacioppo & Petty, 1981). In the pilot study for this project, independent judges attempted to code the subjects' thought listings but found the task impossible. Therefore, this technique was eliminated, and the subject rating method employed.

In 1968, Cullen compared split-half and test-retest reliabilities of the thought-listing procedure with the Likert and Thurstone scales (Cacioppo & Petty, 1981). She found that the average split-half reliability was .78 for thought-listings, .83 for Likert scales, and .55 for Thurstone scales. The average test-retest reliabilities were .64 for thought-listings, .83 for Likert scales, and .53 for Thurstone scales (Cacioppo & Petty, 1981). These findings suggested the thought-listing procedure was a reliable measure (Cacioppo & Petty, 1981). Although a more reliable measure, the Likert scale approach was not employed because the researcher was interested in individual cognitive responses to the message and not simply a measure of likelihood of responding in a predicted manner. The Likert

scale approach would force the researcher to speculate about specific, probable responses, which may reflect the researcher's cognitive schemata more than measure the participants' schemata.

Researchers have also found that thought-listing reflects enhancements of a person's motivation to think about a communication. Cacioppo and Petty (1981) found that thought-listings revealing the production of favorable thoughts were enhanced by involvement in a high quality communication, and unfavorable thoughts were enhanced by involvement in a low quality communication. Therefore, the researchers emphasized that high involvement issues produce stronger correlations among cognitive and affective responses than do low-involvement issues (Cacioppo & Petty, 1981).

A message that is in accord with the subjects self-schema elicited more total thoughts, more externally originated thoughts, and more thoughts with the message as target (Cacioppo & Petty, 1981). These results suggested that a developed self-schema expanded thought production and more specifically, increased topic relevant thinking. The study of the self-schema influence on affect and behavior seems to offer a more complete understanding of individualistic cognitive responses (Cacioppo & Petty, 1981).

### **Survey Assessing Recall, Affect, Attitude, etc.**

The final instrument was the survey assessing recall, affect towards message, attitudes towards illicit drugs, drug use patterns, behavioral intentions regarding likelihood of calling a hotline or seeking peer counseling, and television and movie preferences.

Attitudes towards drugs were measured using six bipolar adjectives on a scale of 1 to 7. Participants rated how they felt about drugs in relation to these adjectives (good/bad, pleasant/unpleasant, valuable/worthless, nice/awful, favorable/unfavorable, acceptable/unacceptable). This scale has been employed in previous drug abuse research (Donohew et al., 1991). The Cronbach alpha level of the scale for this sample was .95. A total for the scale was computed by summing all responses, yielding a minimum value of seven and a maximum value of 42. The mean for the scale was 36.25 with a standard deviation of 8, indicating a relatively strong anti-drug attitude. The reporting of anti-drug attitudes may have been influenced by social desirability or may be truly representative of the sample. In any case, the generalizability of results concerning this variable are tentative.

Affect towards message (either high sensation value or low sensation value) was determined using two Likert-type items (i.e., "I experienced pleasant feelings while watching the commercial," and "I liked the commercial").



Recall was determined through two specific questions, such as "what was the phone number of the drug hotline" or "what were the scenes depicted as the ball hit the bumpers." The accuracy of the responses was coded as completely incorrect, partially correct, and completely correct. Most of the participants partially remembered the hotline number but remembered none of the prosocial scenes. This may be a realistic assessment of the amount of recall generated by PSAs in their normal cluttered environment.

For behavioral intentions, subjects were asked to rate how likely they would be to call a drug hotline if they had a drug problem or if a family member had a drug problem. With this wording, even subjects who did not attend to the PSA could respond meaningfully. Such single item measures of behavioral intention have been shown to be highly reliable and related to actual behavior (Ajzen & Fishbein, 1980). The other single-item behavioral intention item asked how likely they would be to attend peer drug counseling sessions if they or a family member had a drug problem. Since these items assess intentions on different areas, they were not collapsed into an index but remained single item measures.

Drug use items were adapted from a drug use survey used by Donohew et al. (1991). Donohew et al. (1991) adapted the instrument from measures used in a continuing survey of young people by the Institute for Social Research at the University of Michigan. In this study, approximately 190

subjects reported never using drugs in the past 30 days. Based upon this high number of nonusers, subjects who had not used drugs in the last 30 days were classified as nonusers; those who had used drugs one to two times were classified as moderate users; and those who used drugs over three times were classified as heavy users. Due to the limited variation in frequency of drug use in the last 30 days, this variable was not used in ANOVAs as an independent variable.

Another measure of drug use was the total frequency of drug use in the participant's lifetime. Based upon a mean of with a standard deviation of, participants who had never used drugs were classified as nonusers (35); whereas those who had used drugs one to 47 times were classified as moderate users (143) and over 48 times were classified a heavy users (32). Also, a measure of future drug use indicated that a large majority of respondents did not intend on using drugs in the 30 days.

Respondents were also asked to list their favorite movie and television show as a measure of the sensation seeking construct. Sensation value of the movies and television shows were rated on a five point scale (1=high sensation to 5=low sensation). The shows were judged on elements identified by Zuckerman, such as violence, comedy, color, quickness, romance. If the show or movie contained violence, was quick moving, or contained disturbing topics,

it was rated as either extremely high in sensation (1) or high in sensation (2), depending upon degree of violence, quickness, and controversialness. For instance, "Silence of the Lambs" would be considered extremely high in sensation, and "911" would be considered high in sensation. If the show sometimes contained these elements in small doses, it was rated as moderate in sensation (3). Most of the television dramas fell into this category. Finally, if the show was primarily a comedy or a romance, it was rated as low in sensation (4) or extremely low in sensation (5). "Roseanne" would be considered low in sensation, and "Golden Girls" would be an example of an extremely low in sensation show. Please see the section on sensation seeking for further details on elements considered to influence sensation value.

This final instrument was examined for clarity and content by qualified persons in the field.

## CHAPTER III

### RESULTS

This study posited eight hypotheses to examine the sensation seeking construct in conjunction with the Elaboration Likelihood Model. Four hypotheses were proposed to examine the manipulation of message sensation value. Before a discussion of the results, the analysis of the data will be discussed in detail.

Hypothesis 1: Under conditions of high relevance, high sensation seekers will process a low sensation value message centrally.

Hypothesis 2: Under conditions of high relevance, low sensation seekers will process a high sensation value centrally.

These hypotheses were only partially confirmed by the threeway between groups analysis of variance. The examination of the interaction of three levels of involvement, three levels of sensation seeking, and two levels of message sensation value yielded a significant main effect for message sensation value on number of message-related thoughts ( $F=3.985$ ,  $df=1/218$ ,  $p=.047$ ). Subjects in the low sensation message condition generated more message related thoughts than subjects in the high sensation message condition. The eta value for this effect was 0.14, accounting for 1.96 percent of the variance. No significant main effects for sensation seeking or level of involvement emerged from this analysis. Likewise, no interaction effects

were significant. See Table 3.1 on page 54 for the means of the effects.

Hypothesis 3: Under conditions of low relevance, high sensation seekers will process a high sensation value message peripherally.

Hypothesis 4: Under conditions of low relevance, low sensation seekers will process a low sensation value message peripherally.

These hypotheses were not supported by the 3x3x2 between groups analysis of variance. Three levels of involvement, three levels of sensation seeking, and two levels of message sensation value were examined for their influence on cue-related thoughts. Sensation seeking was not significant ( $F=0.85$ ,  $df=2/218$ ,  $p=.430$ ); there was no effect for involvement ( $F=1.77$ ,  $df=2/218$ ,  $p=.173$ ) or message sensation value ( $F=0.76$ ,  $df=1/218$ ,  $p=.384$ ). The results of the power analysis indicated low observed power at the 0.05 level. See Table 3.2 on page 55 for means of the effects.

Hypothesis 5: Under conditions of high relevance, high sensation seekers will process a high sensation value message both centrally and peripherally.

Hypothesis 6: Under conditions of high relevance, low sensation seekers will process a low sensation value message both centrally and peripherally.

These hypotheses were proposed to test the concept of parallel processing. Since there were no significant effects for peripheral processing, these hypotheses cannot be supported, and no new information can be added beyond the effect of message sensation value on central processing or

**Table 3.1**

The Effects of Sensation Seeking, Involvement  
and Message Sensation Value on Mean  
Number of Message Related Thoughts

**High Sensation Message \***

	Low PII	Moderate PII	High PII
LSS	0.00	1.50	2.25
MSS	1.43	1.73	2.27
HSS	0.50	2.20	3.00

**Low Sensation Message \***

	Low PII	Moderate PII	High PII
LSS	3.00	1.54	1.83
MSS	2.25	2.37	2.35
HSS	2.60	1.79	3.00

\* Subjects in low message condition generated more message related thoughts than subjects in the high message condition at the .05 significance level.

**Table 3.2**

The Effects of Sensation Seeking, Involvement  
and Message Sensation Value on Mean  
Number of Cue-Related Thoughts

#### High Sensation Message

	Low PII	Moderate PII	High PII
LSS	0.00	1.90	1.50
MSS	1.71	1.95	1.91
HSS	2.00	2.50	3.00

#### Low Sensation Message

	Low PII	Moderate PII	High PII
LSS	0.50	1.69	1.17
MSS	1.00	1.91	2.47
HSS	1.20	1.64	1.00

No significant effects occurred.

number of message-related thoughts.

Hypothesis 7: Under conditions of low relevance, high sensation seekers will not process a low sensation value message but will avoid the message.

Hypothesis 8: Under conditions of low relevance, low sensation seekers will not process a high sensation value message but will avoid the message.

These hypotheses were partially confirmed by the 3x3x2 between groups analysis of variance. Examination of three levels of involvement, three levels of sensation seeking, and two levels of message sensation value yielded a significant main effect for sensation seeking on number of irrelevant thoughts generated ( $F=4.25$ ,  $df=2/218$ ,  $p=.016$ ). High sensation seekers generated the most irrelevant thoughts ( $x=1.46$ ), followed by low sensation seekers ( $x=1.14$ ) and then moderate sensation seekers ( $x=0.81$ ). The eta value was .19, accounting for 3.6 percent of the variance. No other main effects or interaction effects were significant in this analysis. See Table 3.3 on page 57 for the means of the effects .

Hypothesis 9: High sensation seekers who show high involvement will prefer high sensation value messages over low sensation value messages.

Hypothesis 10: Low sensation seekers who show high involvement will prefer low sensation value messages over high sensation value messages.



**Table 3.3**

The Effects of Sensation Seeking, Involvement  
and Message Sensation Value on Mean  
Number of Irrelevant Thoughts

High Sensation Message

	Low PII	Moderate PII	High PII
LSS*	0.00	1.00	0.75
MSS*	0.86	0.71	1.18
HSS*	1.00	1.00	1.00

Low Sensation Message

	Low PII	Moderate PII	High PII
LSS*	0.00	1.08	2.17
MSS*	1.13	0.67	1.06
HSS*	1.20	2.00	2.00

- \* High sensation seekers generated the most irrelevant thoughts. Moderate sensation seekers generated an intermediate number of irrelevant thoughts. Low sensation seekers generated the least number of irrelevant thoughts. Differences were observed at the .05 alpha level.

These hypotheses were partially supported by the threeway between groups analysis of variance. Two items were used to measure affect for the message. Three levels of involvement, three levels of sensation seeking and two levels of message sensation condition were examined for both items. For the first affect item ("I experienced pleasant feelings while watching the commercial), involvement was significant at the  $p < .001$  level ( $F=11.65$ ,  $df=2/218$ ). The eta value was equal to .32, accounting for 10.2 percent of the variance. Highly involved subjects reported experiencing pleasant feelings the most ( $x=2.96$ ), moderately involved subjects were intermediate in their experience ( $x=3.50$ ), and lowly involved subjects experienced the least ( $x=4.18$ ). However, even the highly involved subjects only reported a mean score of 2.96 on this scale indicating the experience was moderately pleasant at best. Subjects did not experience strong, pleasant feelings during the message. Contrary to prior research, there was no significant main effect for sensation seeking and no interaction effect between sensation seeking and message sensation value. No other significant effects emerged from this analysis. See Table 3.4 on page 59 for means of the effects.

The threeway between groups ANOVA also realized a main effect for involvement on the second affect item ("I liked the commercial") ( $F=42.87$ ,  $df=2/218$ ,  $p < .001$ ). Highly involved subjects liked the commercial the most ( $x=1.75$ );

**Table 3.4**

The Effects of Sensation Seeking, Involvement  
and Message Sensation Value on the Mean  
Experience of Pleasant Feelings

Low PII \*

	High Message	Low Message
LSS	0.00 (0)	5.00 (2)
MSS	4.29 (14)	3.88 (8)
HSS	4.00 (4)	4.20 (5)

Moderate PII \*

	High Message	Low Message
LSS	3.40 (10)	3.62 (13)
MSS	3.48 (56)	3.58 (43)
HSS	3.80 (10)	3.07 (14)

High PII \*

	High Message	Low Message
LSS	3.00 (4)	2.83 (6)
MSS	3.09 (11)	2.95 (17)
HSS	3.00 (1)	3.00 (1)

\* Differences were observed at the .05 significance level. Highly involved subjects experienced the most pleasant feelings; moderate sensation seekers were intermediate; and low sensation seekers experienced the least.

moderately involved subjects like the commercial at an intermediate level ( $x=2.55$ ); and lowly involved subjects liked the commercial the least ( $x=3.94$ ). The eta value for this effect was .54 with variance accounted for at 29.2 percent. As indicated by the means, the mean scores for this affect item were lower than the means for the first affect item. Subjects reported liking the commercial but did not experience pleasant feelings while watching it. In opposition with prior research, no other main effects or interaction effects emerged from this analysis. See Table 3.5 on page 61 for means of the effects.

Hypothesis 11: High sensation seekers will prefer high sensation value television programs, whereas low sensation seekers will prefer low sensation value television programs.

Contrary to prediction, the oneway between groups analysis of variance did not realize a significant effect for sensation seeking on television show preference ( $F=0.094$ ,  $df=2/203$ ,  $p=.91$ ). See Table 3.6 on page 64 for means of the effect.

Hypothesis 12: High sensation seekers will prefer high sensation value movies, whereas low sensation seekers will prefer low sensation value movies.

The oneway between groups analysis of variance yielded a significant effect for sensation seeking on movie preference ( $F=7.61$ ,  $df=2/198$ ,  $p < .001$ ). The eta value was .27, accounting for 7.3 percent of the variance. The results

**Table 3.5**

The Effects of Sensation Seeking, Involvement  
and Message Sensation Value on Mean  
Liking of the Commercial

Low PII \*

	High Message	Low Message
LSS	0.00 (0)	3.50 (2)
MSS	3.86 (14)	4.38 (8)
HSS	3.50 (4)	4.00 (5)

Moderate PII \*

	High Message	Low Message
LSS	2.40 (10)	2.54 (13)
MSS	2.55 (56)	2.51 (43)
HSS	2.40 (10)	2.86 (14)

High PII \*

	High Message	Low Message
LSS	2.50 (4)	1.83 (6)
MSS	1.45 (11)	1.82 (17)
HSS	1.00 (1)	1.00 (1)

- \* Differences were observed at the .05 significance level. Highly involved subjects liked the commercial the most; moderately involved subjects liked it at an intermediate level; and lowly involved subjects liked it the least.

of the Tukey test for differences indicated a significant difference between high, moderate, and low sensation seekers in movie preference. High sensation seekers tended to like highest sensation seeking movies ( $x=2.52$ ). Moderate sensation seekers tended to like moderate sensation movies ( $x=3.27$ ), and low sensation seekers tended to like low sensation movies ( $x=3.94$ ). See Table 3.6 on page 64 for the means of the effect.

#### Other findings:

The oneway between groups analysis of variance yielded a significant main effect for sensation seeking on frequency of drug use across participant's lifetime ( $F=19.72$ ,  $df=2/209$ ,  $p < .001$ ). According to the Tukey test for differences, high sensation seekers used significantly more drugs across their lifetime than moderate and low sensation seekers. The eta value for this effect was .40 which accounted for 16.0 percent of the variance in the dependent variable. See Table 3.6 on page 64 for the means of the effect.

The oneway between groups analysis of variance revealed a significant effect for sensation seeking on intended drug use in the future ( $F=4.021$ ,  $df=2/218$ ,  $p=.019$ ). Results of the Tukey test for differences indicated that high sensation seekers intended to use drugs in the future more than moderate and low sensation seekers. The eta value for this

effect was .30, accounting for 9.0 percent of the variance. Regardless of their sensation seeking makeup however, none of the groups indicated a strong intention to use drugs in the future. The means were 1.23 for low sensation seekers, 1.40 for moderate sensation seekers, and 2.31 for high sensation seekers. See Table 3.6 on page 64 for means of the effect.

The oneway between groups analysis of variance revealed a significant effect of sensation seeking on involvement ( $F=5.04$ ,  $df=2,218$ ,  $p < 0.01$ ). Eta value equaled .21 with sensation seeking, accounting for 4.41 percent of the variance in level of involvement. The Tukey test for differences indicated that high sensation seekers ( $x=1.80$ ) were more involved than moderate ( $x=2.04$ ) and low sensation seekers ( $x=2.23$ ). See Table 3.6 on page 64 for means of the effect.

Due to the heterogeneity of the sample on drug use, a Chi Square was conducted for sensation seeking on drug use in the last 30 days rather than an analysis of variance. A large majority (190) of the subjects reported no use of drugs in the last 30 days. All thirty five of the low sensation seekers reported no usage, as predicted. Moderate sensation seekers reported using drugs zero times (134), one to two times (9), and over three times (6). Likewise, the high sensation seekers were distributed across the three categories in a similar manner -- twenty one in the zero

Table 3.6

Means and Standard Deviations for  
the Sensation Seeking Effects

	LSS	MSS	HSS
Recall of prosocial scenes	x=.91 s=1.04	x=1.40 s=.99	x=1.31 s=1.25
Involvement	x=2.23 s=.55	x=2.04 s=.58	x=1.80* s=.53
Drug use ever	x=1.34 s=.54	x=1.51 s=.70	x=2.28* s=.73
Drug use future	x=1.23 s=.94	x=1.40 s=.89	x=2.31* s=1.32
Movie preferences	x=3.94* s=1.29	x=3.26* s=1.49	x=2.52* s=1.41
Television preferences	x=4.00 s=1.24	x=3.91 s=1.13	x=3.88 s=1.27

\* Group(s) significantly differs from other groups at  $p \leq .05$  level.



category, seven in the one to two category, and five in the three or more category. The Pearson, Likelihood Ratio, and Mantel-Haenszel Test for Linear Association were significant at the  $p < .001$  level. The eta value with the drug use in last 30 days as the dependent variable was .31. See Table 3.7 on page 66 for a summary of the distribution.

The results of the homogeneity test revealed heterogeneity of variance with regard to attitude; therefore, a Chi Square was conducted for sensation seeking and attitude towards drugs. No low sensation seekers were pro-drug in attitude; however, twenty moderate sensation seekers and eighteen high sensation seekers rated drugs favorably. In the midrange drug attitude category, there were six low sensation seekers, 54 moderate sensation seekers, and nine high sensation seekers. The anti-drug attitude category consisted of 29 low, 75 moderate, and eight high sensation seekers. The Pearson, Likelihood Ratio, and Mantel-Haenszel Test for Linear Association were significant at  $p < .001$ . The eta value with the attitude score as dependent was .42. See Table 3.8 on page 67 for a summary of the distribution.

A significant effect occurred for frequency of drug use across lifetime on intentions to use drugs in the future according to the oneway between groups analysis of variance ( $F=7.561$ ,  $df=2/218$ ,  $p < .001$ ). Subjects who were heavy users of drugs indicated stronger intentions to use drugs in the

Table 3.7

Chi Square Analysis of Sensation Seeking  
and Drug Use over 30 Days

	LSS *	MSS *	HSS *	Row Total
Nonusers	35	134	21	190 87.6
Moderate Users	0	9	7	16 7.4
Heavy Users	0	6	5	11 5.1
Column Total	35 16.1	149 68.7	33 15.2	217 100.0

\* Differences between groups were observed at the .05 significance level. Low sensation seekers used drugs less than moderate and high sensation seekers.

Table 3.8

Chi Square Analysis of Sensation Seeking  
and Attitude towards Drugs

	LSS *	MSS *	HSS *	Row Total
Prodrug	0	20	18	38 17.4
Midrange	6	54	9	69 31.5
Antidrug	29	75	8	112 51.1
Column Total	35 16.0	149 68.0	35 16.0	219 100.0

- \* Differences were observed at the .05 significance level. High sensation seekers tended to be pro-drug in attitude. Moderate sensation seekers were midrange in attitude, and low sensation seekers were anti-drug in attitude.

future than subjects who were nonusers or moderate users. Again, no group indicated extremely strong intentions to use drugs in the future. The eta value for this effect was .35, accounting for 12.3 percent of the variance. See Table 3.9 on page 69 for the means of the effect.

Consistent with prior research, the oneway between groups analysis of variance yielded a significant effect for frequency of drug use across lifetime on attitude ( $F=34.815$ ,  $df=2/209$ ,  $p < .001$ ). Subjects who were heavy users of drugs indicated a pro-drug attitude; moderate users of drugs indicated a midrange attitude; and nonusers reported an anti-drug attitude. The eta value was .59, accounting for 34.8 percent of the variance. See Table 3.9 on page 69 for the means of the effect.

A significant effect for intention to use drugs in the future on attitude emerged from the oneway between groups analysis of variance ( $F=72.90$ ,  $df=2/218$ ,  $p < .001$ ). Persons who held pro-drug attitudes indicated that they were very likely to use drugs in the future. Those who held a midrange attitude reported that they were uncertain about their use of drugs in the future, and those who held anti-drug attitudes indicated they were very unlikely to use drugs in the future. See Table 3.9 on page 69 for the means of the effect.

**Table 3.9**

## The Attitude-Intention-Behavior Link

Drug Use Across Lifetime on Intention to Use Drugs

	Mean	Standard Deviation
Nonusers	1.22	0.82
Moderate Users	1.47	0.76
Heavy Users *	2.19	1.35

Drug Use Across Lifetime on Attitude towards Drugs

	Mean	Standard Deviation
Nonusers *	2.69	0.48
Moderate Users *	2.24	0.72
Heavy Users *	1.59	0.80

Attitude towards Drugs on Intention to Use Drugs

	Mean	Standard Deviation
Prodrug *	2.92	1.22
Midrange *	1.41	0.75
Antidrug *	1.10	0.65

Attitude towards Drugs on Drug Use Across Lifetime

	Mean	Standard Deviation
Prodrug *	2.60	0.56
Midrange *	1.60	0.67
Antidrug *	1.33	0.58

\* Group(s) significantly differs from others at the .05 significance level.

The 3x3x3 between groups analysis of variance (involvement by sensation seeking by drug use across lifetime) revealed a significant main effect for sensation seeking on number of prosocial scenes recalled ( $F=3.07$ ,  $df=2/218$   $p < .05$ ). The eta value for this effect was .17, accounting for 2.9 percent of the variance. Results of the Tukey test for differences indicated that high and moderate sensation seekers recalled significantly more scenes than low sensation seekers ( $x=1.31$ ,  $x=1.40$ ,  $x=0.91$ , respectively). See Table 3.6 on page 64 and Table 3.10 on page 71 for means of the effects.

The results of the above 3x3x3 analysis of variance was suggestive of significance, but not definitive, for involvement on number of prosocial scenes recalled ( $F=2.961$ ,  $df=2/209$ ,  $p=.054$ ). Subjects who were moderately to highly involved recalled more scenes than subjects who were lowly involved. The eta value for this effect was small at .15. There was no effect for frequency of drug use over lifetime on recall. See Table 3.10 on page 71 for means of the effect.

A significant interaction of sensation seeking and frequency of drug use over lifetime on ability to recall the hotline number emerged from the threeway analysis of variance ( $F=2.566$ ,  $df=4/209$ ,  $p=.04$ ). Moderate drug users who were low sensation seekers, heavy users who were moderate sensation seekers, and nonusers who were high sensation

Table 3.10

The Effects of Sensation Seeking, Involvement  
and Drug Use Across Lifetime on Ability  
to Recall Prosocial Scenes

## Low PII

	Nonusers	Moderate Users	Heavy Users
LSS *	0.00 (1)	0.00 (1)	0.00 (0)
MSS	1.00 (14)	0.50 (4)	0.67 (3)
HSS	0.00 (0)	0.67 (3)	1.75 (4)

## Moderate PII

	Nonusers	Moderate Users	Heavy Users
LSS *	0.88 (16)	0.86 (7)	0.00 (0)
MSS	1.64 (59)	1.41 (29)	0.63 (8)
HSS	1.00 (5)	1.63 (8)	1.10 (10)

## High PII

	Nonusers	Moderate Users	Heavy Users
LSS *	1.14 (7)	1.00 (2)	2.00 (1)
MSS	1.29 (7)	1.83 (6)	1.50 (6)
HSS	0.00 (0)	0.50 (2)	0.00 (0)

\* Differences were observed at the .05 significance level. Low sensation seekers recalled significantly less scenes than moderate and high sensation seekers.

seekers were better able to recall the hotline number than their counterparts. On the other hand, heavy users who were high sensation seekers and nonusers who were low sensation seekers or moderate sensation seekers had the most difficulty in recalling the hotline number. Eta values were .08 for sensation seeking and .10 for drug use over lifetime, accounting for 1.6 percent of the variance. Ability to recall the hotline number was not influenced by involvement. See Table 3.11 on page 73 for means of the effects and Figure 3.1 on page 74 for an illustration of the interaction.

A discussion of these results and their implications is now in order.



Table 3.11

The Effects of Sensation Seeking, Involvement  
and Drug Use Across Lifetime on  
Ability to Recall Hotline Number

## Low PII

	Nonuser	Moderate User	Heavy User
LSS	0.00 (1)	0.00 (1)	0.00 (0)
MSS	0.93 (14)	0.00 (4)	1.00 (3)
HSS	0.00 (0)	0.67 (3)	0.50 (4)

## Moderate PII

	Nonusers	Moderate Users	Heavy Users
LSS	0.63 (16)	1.43 (7)	0.00 (0)
MSS	0.92 (59)	1.03 (29)	1.38 (8)
HSS	1.20 (5)	1.13 (8)	0.30 (10)

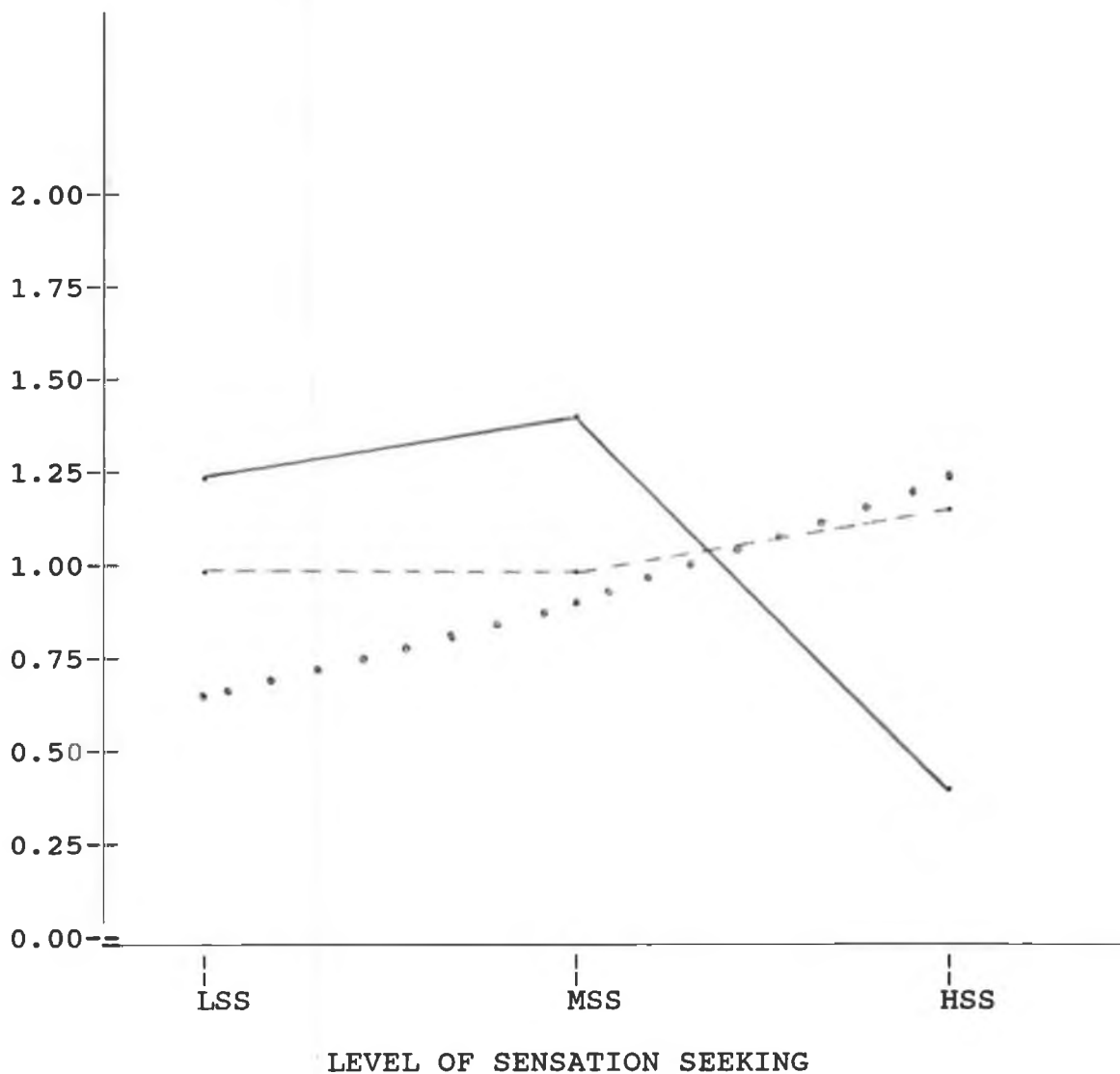
## High PII

	Nonusers	Moderate Users	Heavy Users
LSS	0.71 (7)	1.00 (2)	1.00 (1)
MSS	0.71 (14)	1.17 (6)	1.33 (6)
HSS	0.00 (0)	2.00 (2)	0.00 (0)

\* Differences were observed at the .05 level. Level of involvement was not significant. There was an interaction effect for sensation seeking and drug use on mean ability to recall hotline. (0=incorrect, 1=partially correct, 2=completely correct)

**Figure 3.1**

The Interaction of Sensation Seeking and  
Drug Use Across Lifetime on Ability  
to Recall Hotline Number



———— Heavy Users  
----- Moderate Users  
..... Nonusers

## CHAPTER IV

### DISCUSSION

The findings of this study are discussed within the frameworks of the Health Belief Model and the Elaboration Likelihood Model, both of which have been reviewed in Chapter 1.

Consistent with the pilot study for this project, subjects in the low sensation message condition generated more message related thoughts than subjects in the high sensation message condition. The high sensation message condition employed a public service announcement that was determined by Donohew et al. (1991) to be of high sensation value. The public service announcement was fast paced with loud rock music and many colorful visual cues; therefore, the subjects could have easily been distracted from the central message and thus generated fewer message related thoughts. The low sensation value message was not as distracting; it was slower paced with light music. This condition allowed subjects to concentrate more fully on the message as they were less distracted by the visual cues.

The compensatory principle further explains this result. According to the compensatory principle, many factors that increase the likelihood of attitude or behavior change may also decrease the likelihood of an attitude/behavior change (McGuire, 1989). In order to begin

the persuasive process, persons must attend to a message. While the high sensation value in the message gained attention, it also served as a distraction from the actual message itself. This trigger was intended to enhance the persuasive power of the message by capitalizing on a person's need for sensation and thus increasing a person's motivation to attend. However, it decreased the persuasive power of the message with its distracting visual cues. Petty and Cacioppo (1986) studied distraction as a variable in the Elaboration Likelihood Model and found that distraction disrupts the thoughts that would normally be elicited by the message.

Since there were no significant differences for number of cue related thoughts, one may conclude that none of the cues presented served as triggers for peripheral processing for one group and not the others. Either all groups generated a similar number of cue related thoughts, or none of the cues were strong enough to motivate information processing. Although the cues were strong enough to distract from message or central processing, they were not effective enough triggers for peripheral processing to occur. In any case, the data from this analysis do not provide a definitive resolution to this problem.

Since the mean number of cue related thoughts was 1.9, there was very little variability in the data, thus decreasing the likelihood of finding an effect. Although not

significant, the data do show a slight variability in cue related thoughts. High sensation seekers generated slightly more cue related thoughts than low sensation seekers, as expected. Sensation value is generally contained in peripheral cues, and these high sensation seekers require stronger messages to attract their attention. Therefore, the high sensation seekers paid more attention to the cues than their counterparts. Conversely, the low sensation seekers avoided the cues that were too high in sensation. Since low sensation seekers are unlikely to use drugs, the perception of susceptibility to drugs was not present, so a decrease in motivation to attend to the commercial occurred. This situation provides an opportunity for further research in the design of effective messages. Campaign developers need to determine triggers or cues that will gain and keep the attention of their audience.

The results of the analysis on number of irrelevant thoughts generated presents some interesting information about the nature of sensation seeking as a variable in persuasion. The high sensation seekers generated the most irrelevant thoughts, followed by the low sensation seekers, and then moderate sensation seekers. High sensation seekers require high amounts of stimuli to gain and keep their attention; neither of the message conditions may have been exciting enough to do so. As a result, the high sensation seekers avoided the message and searched for sensation

elsewhere. An alternative explanation incorporates the vulnerability concept of the Health Belief Model. Previous research has indicated that high sensation seeking drug users are often comfortable with their drug use behavior or feel in control of it. With this information in mind, one could easily envision the high sensation seeker avoiding the anti-drug message due to a lack of perceived susceptibility and, thus, a lack of motivation.

On the other hand, low sensation seekers tend to avoid messages that contain too much stimuli or sensation, and low sensation seekers are the least likely group to use drugs. Therefore, they may have generated irrelevant responses to avoid a message that was too disturbing or because they perceived low susceptibility to drugs and low severity of their current behavior. Most likely, their reason for avoiding is the latter. If they are not involved in drug use behavior due to a lack of need for sensation, they certainly do not feel vulnerable or susceptible to drug addiction. Therefore, the combination of the sensation seeking enabling cue, perception of susceptibility, and perception of severity may have caused avoidance of the message.

The most interesting group, however, may be the moderate sensation seekers, who generated the least number of irrelevant thoughts. If the public service announcements were in fact moderate in sensation seeking and not high and low as previously thought, then this behavior would be

consistent with the optimal level of arousal concept. The stimuli or sensation present in the public service announcement was an effective enough trigger to gain their attention and to prevent possible discomfort from too much sensation. Therefore, information processing could continue. Prior research has indicated that high sensation seekers like high sensation messages and low sensation seekers like low sensation messages (Donohew et al., 1991). However, this finding was not replicated in this study, which raises a question about the sensation value of the public service announcements. Since there was no effect for sensation seeking on affect, one can assume that these sensation seekers did not perceive the two versions as different. Therefore, the versions may not be low and high in sensation but moderate.

Also, the drug use behavior of these moderate sensation seekers is likely to be mixed with some users and some nonusers. They may become addicted to drugs after trying drugs recreationally in their moderate desire for excitement and arousal. As a result, motivation to attend was enhanced by the perceived vulnerability to drug addiction or their sensation seeking enabling cue.

The differences found among sensation seekers on level of involvement attests to the importance of motivation in the Health Belief Model and Elaboration Likelihood Model. By adding this information on involvement, the above

conclusions about the relationship between perception of susceptibility and processing of information are supported. High sensation seekers indicated more involvement than moderate or low sensation seekers; however, they also generated the most irrelevant thoughts. They were engaged in the message but easily distracted. Most importantly, high sensation seekers generated the greatest number of thoughts overall, regardless of category (message related, cue related, or irrelevant). This fact explains the existence of high involvement and the high number of irrelevant thoughts generated by the high sensation seekers. High relevance was present due to their sensation seeking tendency to use drugs as well as their pro-drug attitude and frequent drug usage. However, the public service announcement was not sensational enough to trigger exclusively central or peripheral processing.

The moderate sensation seekers were less involved than the high sensation seekers and generated the least number of irrelevant thoughts, but they generated more message related and cue related thoughts than any other group. Thus, the public service announcement motivated attendance by serving as a source of sensation for this group, but the sensation did not distract them from processing centrally and peripherally. These sensation seekers were obviously involved enough to process the information but perhaps indicated moderate involvement due to a lack of perceived



susceptibility or severity. The low sensation seekers, on the other hand, indicated the least involvement and generated a moderate number of irrelevant thoughts. In addition, this group generated the fewest thoughts over all the categories. Since low sensation seekers are primarily anti-drug in attitude and are the least likely to use drugs, a perceived lack of susceptibility and the absence of the sensation seeking enabling cue generated little motivation to attend to the commercial. Thus, the persuasion process halted at this point.

The effect of involvement on the experience of pleasant feelings during the commercial provides some basic, well known information for campaign developers. Subjects who are involved in the message like the message. So if counterargumentation to a persuasive appeal wants to be decreased or prevented, efforts need to be made to get the audience involved. The media can often provide cues and triggers that increase involvement in the audience, such a celebrity spokesperson or the depiction of negative consequences of a particular behavior.

For drug use campaigns, the most interesting finding in this analysis is the indication of moderately pleasant feelings towards the commercial at best. Since even the highly involved subjects reported moderately pleasant feelings, this finding indicates that another factor beyond involvement is influencing affect. Drug use tends to be

highly associated with values and social norms of the peer group, community, or society; thus, this commercial represented a very personal, perhaps private, issue for most persons. The commercial implies the negative consequences of drug use with the image of an ambulance and the statement "Drugs can take you out of the game." Drugs in general are not a pleasant issue to discuss. Commercials remind people of their personal use of drugs, a family member's or friend's use of drugs, or the ills of society. Drug use is often associated with weakness, crime, and death, topics which do not tend to evoke pleasant feelings. Thus, the public service announcement presented in this study served as a reminder of a negative topic and produced discomfort instead of pleasantness.

As one last point, many groups have been reacting to the serious drug problem in this country through information campaigns. One essential aspect of campaigns is redundancy to guarantee exposure and to keep the issue on the public agenda. However, as Cacioppo and Petty (1986) point out, too much repetition tends to decrease message effectiveness. Many subjects indicated that they were tired of being bombarded with so many drug messages on television. Thus, the simple act of showing them another commercial in this study may have immediately spurred negative feelings and surfaced prejudgments. This conclusion also utilizes the

reasoning behind the compensatory principle which was elaborated on in a prior discussion of distraction.

The effect of involvement on liking of the commercial further supports the previous assertion that subjects who are involved in a persuasive appeal like the persuasive appeal more than those who are less involved. The mean scores for this effect were higher than for the previous affect item indicating that the experience of pleasant feelings is not a requirement for liking of a message, especially for the case of the drug issue. Contrary to prediction, there was no interaction for sensation seeking by message sensation value on liking of the commercial. The difference between the high and low messages may not be as strong as previously reported by Donohew et al. (1991).

The attention and information processing stages of the persuasion process have been discussed in the previous pages. According to the persuasion research, cognitive learning should follow those stages if persuasion is to occur. In this study, learning is assessed by the ability or inability of subjects to recall certain items from the public service announcements. The groups that were readily able to recall the hotline number include low sensation seekers who moderately use drugs, moderate sensation seekers who heavily use drugs, and high sensation seekers who do not use drugs.

Donohew et al. (1991) proposed that low sensation seekers are uncomfortable with their drug use, since it is contrary to their optimal level of arousal. And, they are most likely engaging in drug use in response to peer pressure. Since they are using drugs and uncomfortable with their behavior, the commercial is relevant for them. The hotline number provides a resolution to drug use which may have motivated cognitive learning of the number. Moderate sensation seekers were most likely to attend to the hotline because of their heavy user status. Since the commercial was relevant for them, they attended and processed the information, as evidenced by their lack of irrelevant thoughts listed. Learning of the number occurred due to this involvement in the commercial. The high sensation seekers were not involved in the commercial due to their user status but rather their need for sensation. This group represents an at-risk group for drug use, since they are prone physically to seek sensation and experience. They learned the hotline number because they were involved in the commercial and are likely to have friends who use drugs.

The groups who were least able to recall the hotline number and who did not participate in the cognitive learning process include high sensation seekers who are heavy users, moderate sensation seekers who are nonusers, and low sensation seekers who are nonusers. Perhaps the high sensation seeking, heavy drug users did not learn the number

because they exited the persuasion process at the information processing stage. Due to their prior pro-drug attitude and drug use behavior, they are more likely to have cognitive responses that do not support the message. Therefore, the persuasion process did not proceed in the desired manner. They may have still remained involved in the commercial due to a need for sensation, but most likely, counterargued with the message or avoided it all together. Thus, they learned the number but would not be prepared to yield in the next stage. The moderate sensation seekers who were nonusers did not engage in cognitive learning, since they saw little relationship between the message and their present behavior. The nonusers possessed an anti-drug attitude anyway so are unlikely to find themselves susceptible or see any severity in their present behavior. Thus, they were unmotivated to learn the hotline number. Likewise, the low sensation seeking nonusers were also unmotivated to learn the hotline number. However, with this group, they halted the persuasion process in the attention stage. They are not likely use drugs based upon their sensation seeking makeup, attitude towards drugs, and perception of susceptibility and severity. They scored low on the involvement scale, generated the fewest number of thoughts, and were least able to recall the hotline number, thus indicating a lack of motivation from the beginning of the persuasive effort.

In the other item assessing cognitive learning, prior drug use behavior played no part, but sensation seeking remained an influence. Low sensation seekers recalled the least prosocial scenes, again due to their overall lack of involvement and failure to proceed past the attention stage of the persuasion process. On the other hand, moderate and high sensation seekers were capable of recalling a greater number of prosocial scenes. High sensation seekers were involved in the commercial throughout due to perceived relevance of the issue or a high need for sensation. These scenes primarily depicted exciting alternatives to drugs and would be enjoyed by most, regardless of their drug use behavior. Also, they were presented in the beginning of the commercial prior to the depiction of the drug alley scene which may have created a defensive reaction in most high sensation seekers. The moderate sensation seekers would also enjoy the activities based upon their optimal level of arousal. In addition, these sensation seekers were not easily distracted from the commercial, as evidenced by the low number of irrelevant thoughts generated. Therefore, they also participated in the cognitive learning process.

Although persons who were highly involved proceeded further in the persuasion process -- from attention to learning -- as evidenced by previously cited findings, and even reported liking the commercial, the process breaks down further at the attitude change or behavioral intention

development stage. Thus, liking of the commercial is not sufficient for attitude change and behavioral intention formation. The yielding stage of the persuasion process is addressed next through the discussion of attitudes, and behavior intentions, and actual drug use behavior.

The results of the Chi Square test for attitude and sensation seeking supports the attitude-behavior relationship espoused by many persuasion researchers. Low sensation seekers, who have little tendency to use drugs and reported using drugs the least in this study, also reported the most extreme anti-drug attitudes. Moderate sensation seekers, who are comprised of both users and nonusers, were distributed in all three categories (anti-drug, 75 persons; midrange, 54 persons; pro-drug, 20). Finally, a majority of the high sensation seekers were pro-drug in attitude, coinciding with their physiological tendency to use drugs and their reports of high drug use behavior. These results indicate that campaign researchers must concentrate on changing an attitude in order to change a behavior. Thus, further support is provided for the Health Belief Model as a framework and guide for health information campaigns and the eventual establishment of stable, healthy behaviors. For the drug abuse campaigns, an attack on some commonly-held, positive attitudes concerning drug users, dealers, and the lifestyle surrounding drug use is in order. Many of these attitudes were identified by Black (1991) in his study for

the Partnership for a Drug Free America, and similar conclusions were asserted in his study as well.

Contrary to the findings of Donohew et al. (1991), there was no difference among sensation seekers or among drug users in their behavioral intentions to call the drug hotline or to attend peer counseling sessions for either themselves or family members. However, their past drug use behavior influenced their behavioral intention to continue the unhealthy behavior. Heavy users indicated stronger behavioral intentions to use drugs in the next 30 days; whereas, moderate users and nonusers had little to no intention of using drugs in the next 30 days. Additionally, level of sensation seeking affected participant's intentions to use drugs in the future. High sensation seekers reported a greater probability of drug use than low and moderate sensation seekers. However, none of the groups reported extremely strong intentions, possibly due to social desirability perceptions. An additional link was established between the behavioral intention to use drugs and attitude towards drugs. Persons with pro-drug attitudes reported the strongest behavioral intentions; persons with a midrange attitude reported an intermediate behavioral intention; and persons with anti-drug attitudes reported little or no behavioral intention to use drugs in the future.



As predicted by previous research and referred to in the above discussion, high sensation seekers reported a greater use of drugs than low sensation seekers in the last 30 days and over their lifetime. This result is consistent with findings from Zuckerman (1979), Donohew et al. (1991), and others. The moderate sensation seekers differed significantly from low sensation seekers in the drug use over 30 days analysis but did not differ in the drug use over lifetime analysis. Moderate sensation seekers may represent an at-risk group for drug use since, they require some degree of sensation and may also use as a result of peer pressure. Since college students were employed for this study, the frequency of use over the last 30 days may have been more influenced by the social environment than by the need for sensation. However, a closer examination of the relationship between the two variables may reveal that the need for sensation predisposed these persons to pressure and influence. Since low sensation seekers do not require sensation and may actually avoid sensation, they may also avoid certain typical college activities and thus preempt the influence of the social environment.

Kelly's theory of personal constructs supports these assertions. This theory proposes that a person's main concern is to interpret and understand his/her own experience (Kelly, 1970). To do so, the individual develops constructs with which to organize his/her experience, and

then, tests their validity by comparing the constructs to the constructs of others (Kelly, 1970). If these sensation seekers are operating according to this premise, they establish homogeneous peer groups. High sensation seekers develop relationships with other high sensation seekers; therefore, their tendency to use drugs is shared and may be formally supported by group norms. Low sensation seekers develop relationships with low sensation seekers, so their peer group avoids drug behavior and other high sensation activities and develops group norms as such. Moderate sensation seekers may look for moderate sensation seekers or may develop relationships with both low and high sensation seekers; thus, they may be most susceptible to drug use and highly influenced by the norms of their peer group.

The compilation of these findings establishes a strong and important relationship among physiological states (sensation seeking), attitude, behavioral intentions, and actual behavior. The results are certainly consistent with prior research that predicted high sensation seekers have a greater tendency to use drugs than low sensation seekers. The high sensation seekers reported frequent engagement in the drug use behavior, a pro-drug attitude and the intention to continue the behavior. Low sensation seekers reported an anti-drug attitude, no intention to use drugs in the future, and little to no drug use behavior. Most importantly for this study, however, is the comment that these results and

this physical-attitudinal-intentional-behavioral relationship makes on the persuasiveness of the message presented to the participants. Since heavy drug users and high sensation seekers with pro-drug attitudes retained their intention to use drugs in the future, a lack of yielding to the anti-drug message occurred. The message was rejected, and the prior behavioral intention was retained. Thus, for those individuals, the persuasion process halted at this point.

The Health Belief Model would explain this lack of yielding as resulting from a lack of motivation or ability. Groups that indicated a high likelihood of using drugs in the future (high sensation seekers) may not have been motivated to change their intention due to perceptions of low severity, too few benefits, too many barriers, or low likelihood for success. By producing messages and developing campaigns that use the physiological as an enabling cue, the likelihood of producing an attitude change, a behavioral intention change, and ultimately a health behavior change is dramatically increased.

As predicted, the hypothesis on movie preference was supported, lending validity to the construct of sensation seeking as a physiological phenomenon. High sensation seekers reported liking high sensation movies; moderate sensation seekers reported liking more moderate sensation movies; and low sensation seekers reported liking low

sensation movies. High sensation seekers require a greater amount of stimuli and tend to search for excitement and novel experiences. Previous research indicates that high sensation seekers like dramas, rock music, and abstract art, whereas, low sensation seekers, who avoid great amounts of stimuli, like comedies, romances, easy listening music, and traditional art. Thus, this finding validates the sensation seeking construct as being based on some optimal level of arousal and as greatly influencing choices in various mediated genres.

The failure to find significance with television programs does in no way injure the validity of the sensation seeking construct. The researcher asserts two tentative propositions concerning this effect. First, most programs on television may be of a low and moderate sensation level, thus there may be few choices for the high sensation seekers. Few to no television programs may contain a high degree of violence, death, gore, or sex. Even the programs that do show frequent car chases and gun firing or discuss serious and uncomfortable topics may seldom show frequent deaths and tragedies or end with unresolved conflicts. Thus, most of the television shows airing may be low to moderate in sensation, as indicated by the respondents' listings of favorite television programs. This difference between the sensation present in television shows versus movies is evidenced through the means and range of responses. The mean

for the television shows was lower than the mean for movies, and the sensation range for the television shows was smaller as well.

The second assertion concerns the physical setting. The comfortable familiarity of the physical setting in which these programs are viewed may neutralize any high sensation presented in the programs for the low sensation seeking group. Because low sensation seekers view these programs in their home, they may feel safer and less threatened by stimuli presented in a program, and they may feel more in control to turn the television off or to switch the channel. The movie theater is a neutral environment and may present enough strangeness to enhance the sensation in the film. Also, persons are able to exercise more control over what movies they attend than over what television programs they view. There are a broader range of movies available and attending a movie requires more effort than watching a particular television program. When combining these two assertions, any differences in program preference disappear. Although the persons are viewing similar programs, they are doing so for different reasons.

In summary, the sensation seeking construct provides a link between the biological, the affective, and the cognitive processes. As such, the construct of sensation seeking can be utilized best as an enabling cue for motivation in the Health Belief Model and can allow campaign

developers to better predict cognitive responses to persuasive messages. By using sensation value as a cue or trigger in persuasive messages, certain at-risk groups can be better targeted. And, better targeting and production of messages increases the likelihood of the healthy behavior being performed, which is the ultimate goal of all health information campaigns.

Sensation seeking may serve as a trigger for motivation to attend to a message. If the message is of an appropriate sensation level, persons may continue to process the messages centrally, thus increasing the likelihood of a permanent attitude forming. If persons process the message peripherally, a temporary attitude will most likely form. Next, the motivation must be maintained if learning is going to occur. The depiction of few barriers, many benefits, high severity, and high susceptibility will aid in this process. After learning, persons must accept or yield to the information which results in the development of a supportive attitude and behavioral intentions. Again, an emphasis on the motivating factors identified in the Health Belief Model is necessary. Finally, persons must utilize the new health behavior, and upon utilization, the persuasion process is completed. In this phase of the campaign, messages should be geared toward reinforcing self-efficacy and supportive attitudes and behavioral intentions. With the information from this study, which attempts to combine concepts from the

Health Belief Model and Elaboration Likelihood Model, campaign developers should be armed for a successful health information campaign.

### Limitations

Limitations of this study primarily exist within the sample. Three institutions were chosen in order to increase the generalizability of the findings; however, in doing so, the internal validity of the study was jeopardized due to heterogeneity. On many variables of interest, the sample was heterogeneous in nature. The analysis indicated heterogeneity with regard to involvement, sensation seeking, drug use, and number of irrelevant thoughts generated.

Students from the private Catholic university tended to be highest in sensation seeking and lowest in involvement, frequency of drug use over lifetime, and number of irrelevant thoughts. Students from the state university reported moderate involvement, sensation seeking, frequency of drug use, and number of irrelevant thoughts. Students from the community college indicated the highest level of involvement, lowest sensation seeking level, greatest frequency of drug use over their lifetime, and the greatest number of irrelevant thoughts.

However, it is most likely a problem of unequal sample size between these three groups that is causing the differences in results. When treated as a total sample, the

results are more representative of the actual college student population. Since the pilot study which utilized a single college found similar results, the differences found when analyzing for the effect of schools seem inconsequential. Of course, students from the community college are going to differ from the private university students. Community college students tend to be older in age, lower in income, and full time workers outside of school. Due to time constraints and additional responsibilities, these students engage in fewer sensation seeking activities. At the private university, most students live on campus, are younger, and are from higher income families. They have more time and opportunity to partake in the social environment provided for them.

A study which attempts to include both lifestyles would seem to be a more significant addition to the area of health information campaign research. Especially in the field of drug abuse campaigns, a complete understanding of the reasons different persons use drugs, who these people are, and how they live is necessary if any campaign effort is to be even mildly successful.

Other limitations can be identified in the experimental design of the study. This study attempted to measure involvement in the anti-drug commercial through the Personal Involvement Inventory. In most of the Elaboration Likelihood Model research, involvement or motivation is manipulated. In



those studies, researchers found differences in thought processing or cognitive responses under varying conditions of involvement. Although hypothesized in this study, no interaction were found between involvement and any other independent variables, sensation seeking in particular. Perhaps by incorporating a manipulation of involvement in the study, the necessary trigger would have been present to facilitate more defined central and peripheral processing. This step was considered in the design of the study. For instance, involvement may have been manipulated by instructing participants that this commercial would or would not appear on television. However, this step was negated due to concerns regarding students evaluating the production quality of the commercial more than personally responding to the message and cue being presented in commercial, as they would if viewing it naturally on television.

Natural viewing of public service announcements on television is another topic limiting this study. As in any experimental study, some artificiality is introduced. Because the students did not view the commercial in its normal cluttered environment, they may have responded differently to it. Donohew et al. (1991) in their study which utilized these same videos, surrounded the public service announcements with programs and product commercials. Although this technique may have created a more natural setting for the public service announcement, this researcher

was concerned about the sensation value in the programs and product commercials. Sensation seeking was a variable of primary interest in this study, and the study hoped to provide information on the construct so that messages could be designed for better targeting of certain at-risk groups. If the sensation seekers were sensitized to a certain level of sensation in the program or other commercials, the results of the study would have been confounded. The sensation in the public service announcement needed to serve as the trigger for cognitive response if it was to be determined that the message contained effective persuasive appeals for the particular sensation seeker being targeted.

While discussing the public service announcements, it should be noted again that this study did not find the results for message sensation value that Donohew et al. (1991) reported in their study. Donohew et al. (1991) found that high sensation seekers liked and responded to the high sensation seeking message more than the low sensation seeking message, and the opposite was true for low sensation seekers. However, this study produced no such results. Thus, it seems that the public service announcements contained only subtle differences in amount of sensation, and for the most part, did not have an affect on subjects, regardless of their sensation seeking makeup.

This study was self-report in nature and thus, looked at no real behavior. The variables which may be primarily affected by this approach are sensation seeking, thought listing, and past drug use behavior. By nature, thought listings cannot be obtained by any other research method and have been used frequently in past research. Petty and Cacioppo (1981) have found the thought listing procedure as sensitive to manipulations of information processing. Sensation seeking and past drug use behavior may have been influenced by social desirability, rendering the self report of such behaviors as inaccurate. In future research, a social desirability scale may want to be included. However, self report seems to be a useful method in the study of these topics, since other research methods, such as personal interviews, may have been more influenced by social desirability. And, observation is not feasible, as one would be unable to observe all drug taking behaviors and sensation seeking activities.

Finally, a limitation can be identified in the thought listing procedure. In the pilot study, two judges coded the thought listings into message, cue, or irrelevant categories but found this activity virtually impossible. Interpreting the referent of another person's thoughts is invalid and unreliable. Thus, this technique was eliminated, and the subject rating technique employed. After the category scheme was explained, subjects classified their own thoughts.

Although a much better technique, some problems still occurred. Some subjects may not have understood the category scheme or were unable to code their own thoughts. Although subjects who did not correctly complete the form were eliminated from the study, it is still possible that certain thoughts were incorrectly coded. This would undeniably effect the analysis of thought listings and conclusions about information processing. The thought listing technique seems effective for studying valence of thoughts, but it still somewhat uncertain when trying to measure a central thought versus a peripheral thought versus irrelevant thoughts. More studies exploring the validity and reliability of this technique are necessary.

This study, although providing some interesting information, left some questions unanswered. Additional work in the area of the Health Belief Model in combination with the Elaboration Likelihood Model may continue to explain diverse findings in the area of persuasion. The identification of the physiological-cognitive-behavioral relationship certainly bridges many of these findings and opens up new possibilities for health information campaigns.

#### Future Research

Future research in the area of anti-drug campaigns and sensation seeking under the framework of the ELM and HBM should attempt to randomly sample 18-22 year olds who are

not in college. Since the subjects in this study reported very little drug use, this group may be a higher risk group and more appropriate for study. Also, the range of 18-22 is rather narrow, and an incorporation of high school students would greatly add to the generalizability of the results.

Because the public service announcements were shown alone rather than in their natural cluttered environment, artificiality was introduced to the study. Replications of the procedure of this study should attempt to imbed the public service announcements in a neutral sensation surrounding to overcome artificiality and to prevent the threat to internal validity that may occur if the programs surrounding the public service announcement contain a high or low amount of sensation.

The thought listing technique and coding procedure needs further exploration in order to reliably determine central and peripheral processing. Also, involvement is manipulated in most ELM studies which report finding individual differences in processing. Involvement was measured in this study, and these differences in processing were negligible. Since all topics of interest do not lend themselves to manipulations of involvement, studies which attempt to measure involvement should be conducted to fully test the limits of the ELM. If the ELM is not sensitive to passive variables, then the model is certainly limited in its application.

Various messages that have a large differential in sensation should be incorporated to determine if the peripheral cues in the messages are able to attract attention and trigger processing for sensation seekers. However, keeping in mind the compensatory principle, these messages should be tested for distraction potential. Since effective message design is necessary for a successful information campaign, research should continue to explore the subtle nuances in messages that engage supportive cognitive responses. The central route of persuasion is the most effective for producing long-term attitude and behavior changes so should be an area of concentration in health campaign research. Researchers need to discover the variables which influence certain at-risk groups to process information centrally as well as perform a specific health behavior.

The integration of the two models, ELM and HBM, make intuitive sense, but the soundness of this approach should be further discussed theoretically and tested empirically. In addition, additional studies should attempt to explore the physiological-attitudinal-intentional-behavioral chain that is posited here. If this chain is validated, valuable contributions to persuasion are possible.

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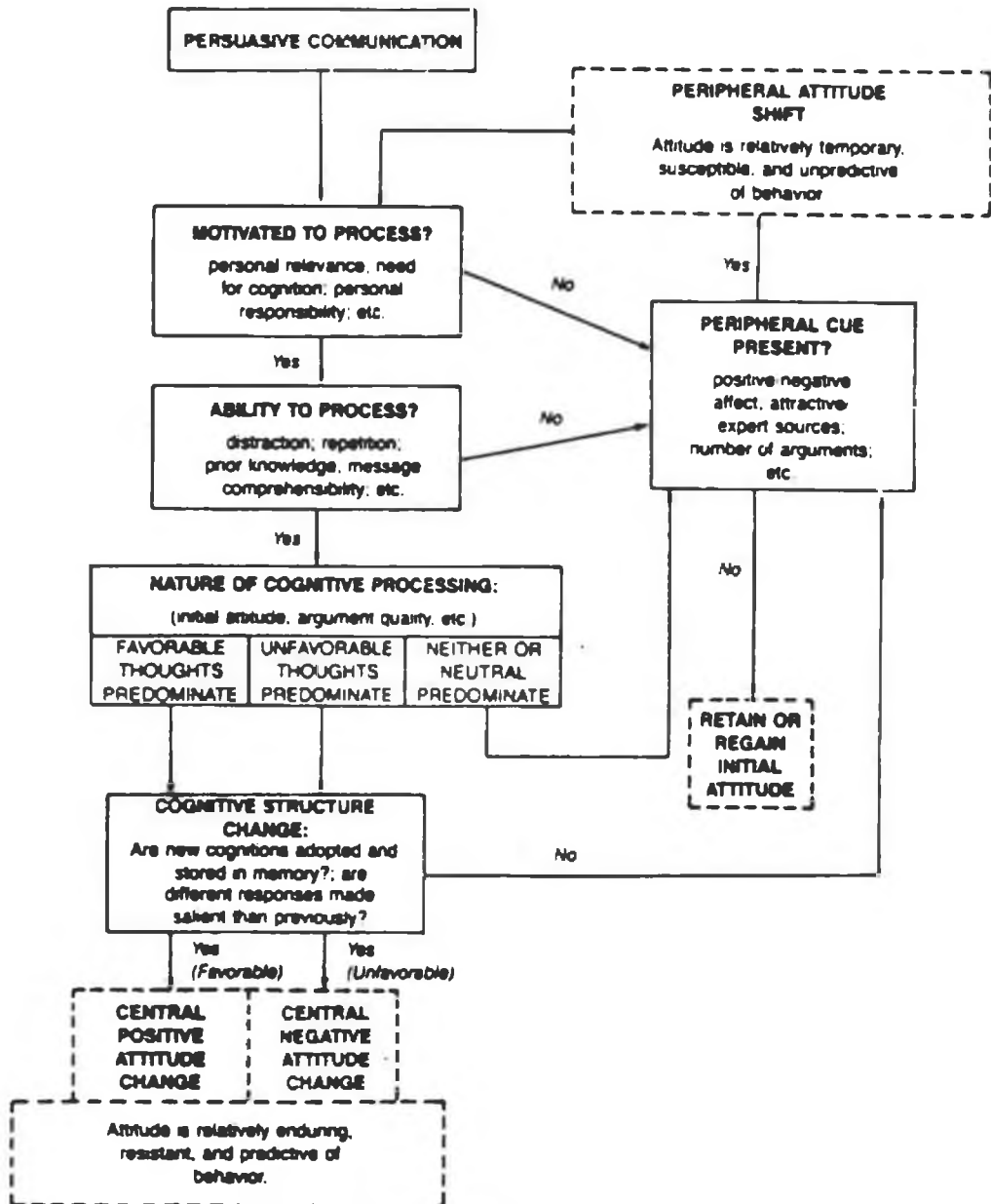
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## Appendix A

Figure 1.1 The Elaboration Likelihood Model



*SCHEMATIC DEPICTION OF THE TWO ROUTES TO PERSUASION. THIS DIAGRAM DEPICTS THE POSSIBLE ENDPOINTS AFTER EXPOSURE TO A PERSUASIVE COMMUNICATION ACCORDING TO THE ELABORATION LIKELIHOOD MODEL (FIGURE ADAPTED FROM PETTY & CACIOPPO, 1981, 1986B).*

Figure 1.2 Organization of Information Processed Centrally or Peripherally

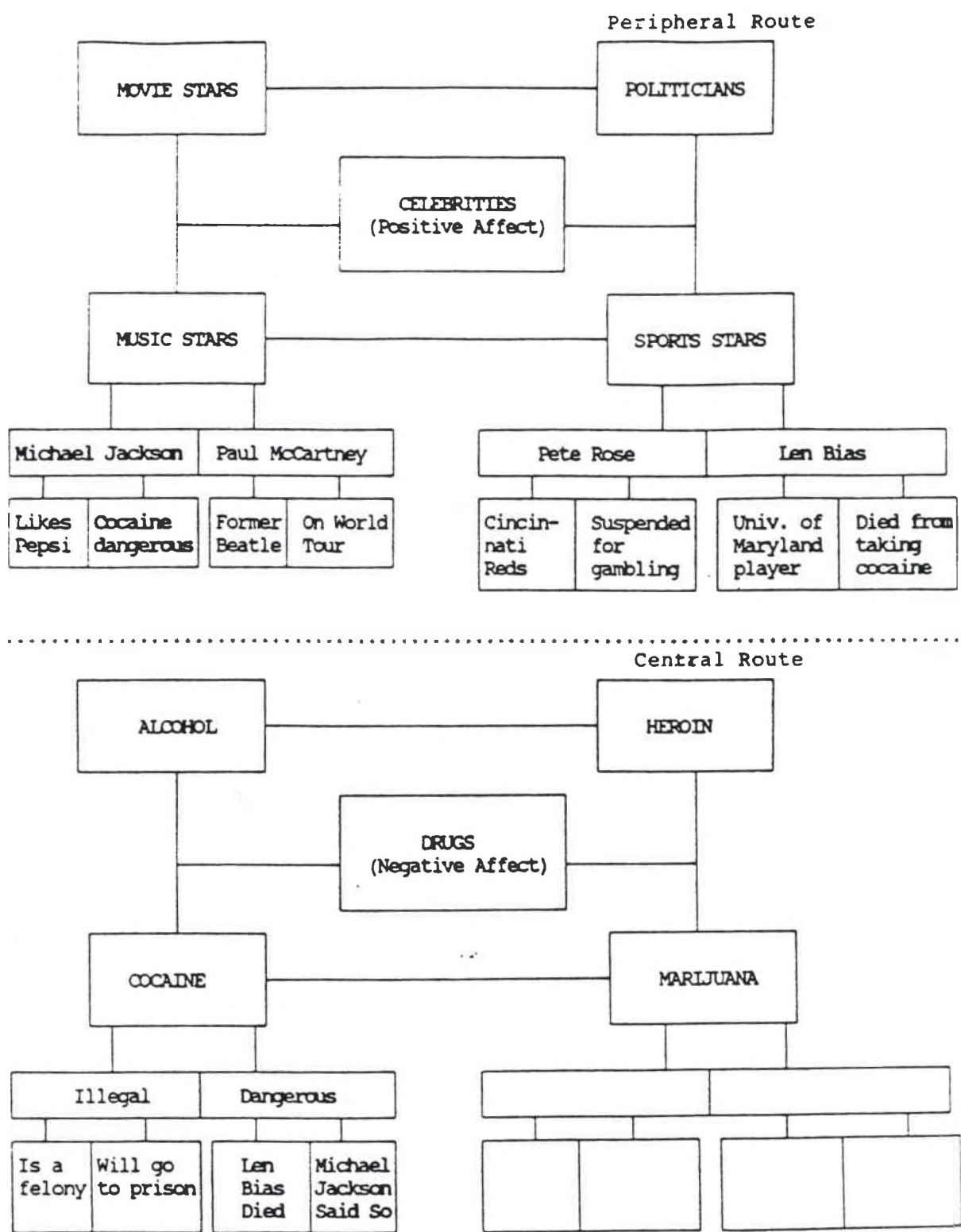


Figure 1.3

### Individual Responses to a Persuasive Appeal

Possible Knowledge, Beliefs, Attitudes, and Behavior in response to a TV commercial featuring a CELEBRITY who talks about two friends who used marijuana and went on to hard drugs and wasted their lives. CELEBRITY advocates "just say no."

Person:

	A	B	C	D	E	F
KNOWLEDGE:	none	Some people who use marijuana go on to use hard drugs and are therefore in DANGER of wasting their lives				CELEBRITY says to say no to drugs
↓	↓	↓	↓	↓	↓	↓
COGNITIVE RESPONSES TO MESSAGE:	(irrelevant)	But few people are like this	Marijuana is dangerous to other people	Marijuana could be dangerous to me		The CELEBRITY disapproves of drug use
↓	↓	↓	↓	↓	↓	↓
ATTITUDE:		Message is irrelevant to me.		I like danger	I dislike danger	I like the CELEBRITY
↓	↓	↓	↓	↓	↓	↓
BEHAVIOR:				I might like drugs	I dislike drugs	I dislike drugs
↓	↓	↓	↓	↓	↓	↓
				POSSIBLE USE OF DRUGS	NON-USE OF DRUGS	

Petty et al. (1991)

## Appendix B

### THOUGHT LISTING PROCEDURE

These instructions are recorded on the video presentation.

#### INSTRUCTIONS:

Thank you for your participation in an ongoing research study. We ask you to watch this video and answer a few questions. Please be honest in your answers. All answers are completely confidential.

(Show PSA)

These instructions are read to the participants by the administrator of the study.

#### INSTRUCTIONS:

I will now pass out the questionnaire. In order to ensure confidentiality, please do not include your name on any of the forms. Please look at Form I at this time. I will read the instructions to you then ask that you complete the form.

#### FORM I:

We are interested in what you were thinking about during the presentation message on the tape. The thoughts you had do not have to be related to any of the subjects presented. Simply list what it was that you were thinking during the tape presentation. The first two pages of the booklet contain a form for you to use to record your thoughts and ideas. Simply write down the first idea you had in the first box, the second idea in the second box, etc. Please put only one idea or thought in a box. You should try to record only those ideas you were thinking during the tape presentation. Please state your thoughts and ideas as concisely as possible... a phrase is sufficient. Ignore spelling, grammar, and punctuation. We have provided more space than we think most people will need to insure everyone would have plenty of room to write down the ideas they had during the message. So don't worry if you don't fill every space. Just write down what your thoughts were during the message. Please be completely honest and list all the thoughts you had.

Please stop after you have completed this section. Do not proceed further into the questionnaire.

(adapted from Cacioppo and Petty, 1981)



**DIRECTIONS:** List any thoughts you had during this videotaped program. The thoughts do not have to be on any of the subjects presented. List only one thought per box. Be sure to list only thoughts you had during the program.

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**SENSATION SEEKING SCALE**

**DIRECTIONS:** Each of the items below contains two choices, A and B. Please indicate which of the choices most accurately describes your likes or the way you feel. In some cases, you may like both choices, but choose the one which better describes your likes or feelings. If you do not like either choice, mark the choice you dislike the least.

It is important you respond to all items with only one choice, A or B. Please do not omit any items. We are interested in only your true likes or feelings. Do not worry about how others feel or how one is supposed to feel. There are no right or wrong answers. Be frank and give your honest appraisal of yourself.

1. A. I like "wild" uninhibited parties.  
B. I prefer quiet parties with good conversation.
2. A. There are some movies I enjoy seeing a second or even a third time.  
B. I can't stand watching a movie I've seen before.
3. A. I often wish I could be a mountain climber.  
B. I can't stand people who risk their necks climbing mountains.
4. A. I dislike all body odors.  
B. I like some of the earthy body smells.
5. A. I get bored seeing the same old faces.  
B. I like the comfortable familiarity of everyday faces.
6. A. I like to explore a strange city or section of town by myself, even if it means getting lost.  
B. I prefer a guide when I am in a place I don't know well.
7. A. I dislike people who do or say things just to shock or upset others.  
B. When you can predict almost everything a person will do and say, he or she must be a bore.

8. A. I usually don't enjoy a movie or play where I can predict what will happen in advance.  
B. I don't mind watching a movie or play where I can predict what will happen in advance.
9. A. I have tried marijuana or would like to.  
B. I would never smoke marijuana.
10. A. I would not like to try any drug which might produce strange and dangerous effects on me.  
B. I would like to try some of the new drugs that produce hallucinations.
11. A. A sensible person avoids activities that are dangerous.  
B. I sometimes like to do things that are a little frightening.
12. A. I dislike "partiers."  
B. I enjoy the company of real "partiers."
13. A. I find that stimulants make me uncomfortable.  
B. I often like to get high (drinking liquor or smoking marijuana.)
14. A. I like to try new foods I have never tasted before.  
B. I order the dishes with which I am familiar, so as to avoid disappointment and unpleasantness.
15. A. I enjoy looking at home movies or travel slides.  
B. Looking at someone else's home movies or travel slides bores me tremendously.
16. A. I would like to take up the sport of water-skiing.  
B. I would not like to take up water-skiing.
17. A. I would like to try surfboard riding.  
B. I would not like to try surfboard riding.
18. A. I would like take off on a trip with no pre-planned or defined routes or timetable.  
B. When I go on a trip, I like to plan my route and timetable fairly carefully.
19. A. I prefer the "down-to-earth" kinds of people as friends.  
B. I would like to make friends in some of the eccentric groups like artists or "hippies."
20. A. I would not like to learn to fly an airplane.  
B. I would like to learn to fly an airplane.

21. A. I prefer the surface of the water to the depths.  
B. I would like to go scuba diving.
22. A. I would like to meet some persons who are homosexual (men or women).  
B. I stay away from anyone I suspect as being "queer."
23. A. I would like to try parachute jumping.  
B. I would never want to try jumping out of a plane with or without a parachute.
24. A. I prefer friends who are excitingly unpredictable.  
B. I prefer friends who are reliable and predictable.
25. A. I am not interested in experience for its own sake.  
B. I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal.
26. A. The essence of good art is in its clarity, symmetry of form and harmony of colors.  
B. I often find beauty in the clashing colors and irregular forms of modern painting.
27. A. I enjoy spending time in the familiar surroundings of home.  
B. I get very restless if I have to stay around home for any length of time.
28. A. I like to dive off the high board.  
B. I don't like the feeling I get standing on the high board (or I don't go near it at all.)
29. A. I like to date members of the opposite sex who are physically exciting.  
B. I like to date members of opposite sex who share my values.
30. A. Heavy drinking usually ruins a party because people get loud and boisterous.  
B. Keeping the drinks full is the key to a good party.
31. A. The worst social sin is to be rude.  
B. The worst social sin is to be a bore.
32. A. A person should have considerable sexual experience before marriage.  
B. It's better if two married people begin their sexual experience with each other.

33. A. Even if I had money, I would not care to associate with flighty persons like those in the "jet set" (a rich, cool crowd who fly around the world and party).  
B. I could conceive of myself seeking pleasure around the world with the "jet set."
34. A. I like people who are sharp and witty even if they do sometimes insult others.  
B. I dislike people who have their fun at expense of hurting the feelings of others.
35. A. There is altogether too much portrayal of sex in movies.  
B. I enjoy watching many of the sexy scenes in movies.
36. A. I feel best after taking a couple of drinks.  
B. Something is wrong with people who need liquor to feel good.
37. A. People should dress according to some standards of taste, neatness, and style.  
B. People should dress in individual ways even if the effects are sometimes strange.
38. A. Sailing long distances in a small sailing craft is foolish.  
B. I would like to sail a long distance in a small but seaworthy sailing craft.
39. A. I have no patience with dull or boring persons.  
B. I find something interesting in almost every person I talk with.
40. A. Skiing down a high mountain slope is a good way to end up on crutches.  
B. I think I would enjoy the sensation of skiing very fast down a high mountain slope.

## PERSONAL INVOLVEMENT INVENTORY

**DIRECTIONS:** The purpose of this study is to measure a person's perceptions of drug-related messages. To take this measure, we need you to judge the message you have just been shown against a series of descriptive scales according to how YOU perceive the message. Here is how you are to use the scale.

If you feel that the message you are shown is very closely related to one end of the scale, you should place your check mark as follows:

Unimportant	x							
Important								

If you feel that the message seems only slightly related (but not really neutral) to one end of the scale, you should place your check mark as follows:

Unimportant			x					
Important								

Be sure that you check every scale. Never put more than one check mark on a single scale. Make each item a separate and independent judgement. Work at a fairly high speed through this questionnaire. Do not worry or puzzle over individual items. It is your first impressions, immediate feelings about the message, that we want. On the other hand, do not be careless, because we want your true impressions.





# **SURVEY ASSESSING ATTITUDES, RECALL, ETC.**

**DIRECTIONS:** On the scales below, please indicate your feelings about illegal drugs (i.e., marijuana, cocaine -- not including alcohol). Circle the number which best represents your feelings about illegal drugs. Numbers "1" and "5" indicate very strong feelings. Numbers "2" and "4" indicate more moderate feelings. Number "3" indicates that you are undecided or do not understand the statement. Please work quickly. There are no right or wrong answers. Please do not omit any items.

1. If I had a drug abuse problem, I would never considering calling a drug hotline.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

2. If I had a drug abuse problem, I would consider attending peer drug counseling sessions.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

3. If a family member had a drug abuse problem, I would consider calling a drug hotline.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

4. If a family member had a drug abuse problem, I would not consider attending peer drug counseling sessions.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

5. I experienced pleasant feelings while watching the commercial.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

6. Overall, I liked the commercial.

Strongly						Strongly
Agree	1	2	3	4	5	Disagree

7. How many times have you used drugs in the last 30 days?

\_\_\_\_\_

8. How many times have you ever used drugs?

\_\_\_\_\_

9. I will definitely not use drugs in the next 30 days.

Strongly							Strongly
Agree	1	2	3	4	5		Disagree

10. What was the phone number of the hotline?

\_\_\_\_\_

11. Several activities were depicted in the commercial when the ball hit the bumpers of the pinball machine. List all the activities you can recall.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

12. List your favorite movie \_\_\_\_\_

13. List your favorite television show \_\_\_\_\_

On the next few items, please check closest to the adjective that best describes your attitude towards drugs.

"For me, using drugs would be..."

good	_____	_____	_____	_____	_____	_____	bad
pleasant	_____	_____	_____	_____	_____	_____	unpleasant
worthless	_____	_____	_____	_____	_____	_____	valuable
unfavorable	_____	_____	_____	_____	_____	_____	favorable
nice	_____	_____	_____	_____	_____	_____	awful
acceptable	_____	_____	_____	_____	_____	_____	unacceptable

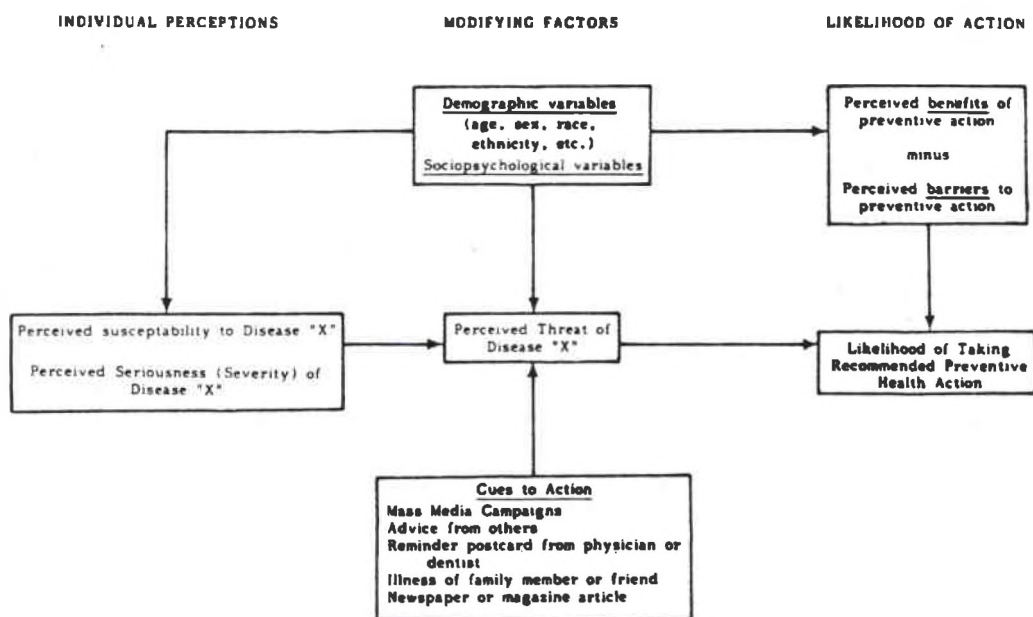
Age: \_\_\_\_\_

Gender:      Male                      Female

My grade point average falls in the following range:  
 0-2.00      2.01-2.50      2.51-3.00      3.01-3.50      3.51-4.00

## Appendix C -- Figure 4.1

## The Health Belief Model



Basic Elements of the Health Belief Model. /

Janz &amp; Becker (1984)